

1941

Catalog

LIBBEY

OWENS

FORD

Quality

Flat

GLASS

Products

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# SELECTING THE RIGHT

## L·O·F GLASS PRODUCT

**SHEET GLASS** — A Quality Double Strength is widely used in glazing private homes, apartment houses where low rentals prevail, smaller hotels, schools, hospitals and other public buildings.

**POLISHED PLATE GLASS** — (Clear and in Colors) In buildings and in private homes where the importance of quality glazing is recognized, Polished Plate Glass is used exclusively. It is essential for store windows. Its use in many mirror installations falls logically within the province of the architect. To furnish even broader opportunities in mirror treatment, L.O.F Polished Plate Glass is also now regularly produced in golden plate, three shades of blue, a peach and a green.

**THERMOPANE** — Thermopane provides double-glass insulation in a highly efficient form—consisting of two panes, separated by an air space, and welded into one metal sealed unit to be glazed in a single sash. Thermopane represents a marked improvement in insulation for all areas where either the practical or decorative scheme requires that glass be used.

**AKLO** — This Plate Glass, with its special chemical composition, has the unusual property of absorbing infrared heat rays. This is an important aid in maintaining even temperatures within a structure. AKLO plate Glass reduces the cost of operating air-conditioning equipment for cooling purposes, because it reduces the total load for a given window area. Recommended for storefronts and lighting fixtures where perishable products are to be displayed.

**TUF-FLEX** — Tuf-Flex Tempered Plate Glass has many specialty uses which employ the advantages of its peculiar properties. Its resistance to impact and thermal shock makes it ideally suited for uses where greater strength is necessary such as in display cases, revolving doors, display shelves, sign facings and show-window trim. Tuf-Flex cannot be cut, mitered, beveled or edged after tempering, and must therefore be ordered from the factory in exact sizes required.

**VITROLUX** — Vitrolux Color Fused Tempered Plate Glass has the same physical characteristics as Tuf-Flex with the added feature that it is available in a wide range of attractive colors — some translucent and some opaque. It answers the architect's demand for a material that will enable him to use luminous color as an integral part of the structure itself, and may be used to create unusual exterior or interior lighting effects. For more complete information see our special structural glass catalog.

**FIGURED AND WIRE GLASS** — Figured Glass is generally specified for office corridors, partitions, skylights, elevator doors and other openings where obscurity is desirable. As a decorative medium, its distinctive character is employed in many homes and public buildings. Wire Glass is used in skylights and light wells and usually is required by building codes in openings exposed to the possibility of fire.

**VITROLITE** — Vitrolite Opaque Structural Glass is furnished in a variety of plain and agate colors for use in bathrooms and kitchens in the home, modern storefront facings, store interiors and fixtures, wainscoting, theatre lobbies, toilet partitions in public buildings and similar installations. It is preferred for its unusual structural beauty, for sanitation and for the ease and economy with which its sparkling surface can be maintained.

**GLASTONE** — Glastone is a specially prepared concrete masonry unit to which a permanent facing of Colorful Structural Glass is bonded and mechanically anchored. Glastone meets the wide demand which exists today for structural glass in the form of a load-bearing masonry unit, to be built into and become an integral part of the building itself. For complete description of this interesting modern product see our special structural glass catalog.

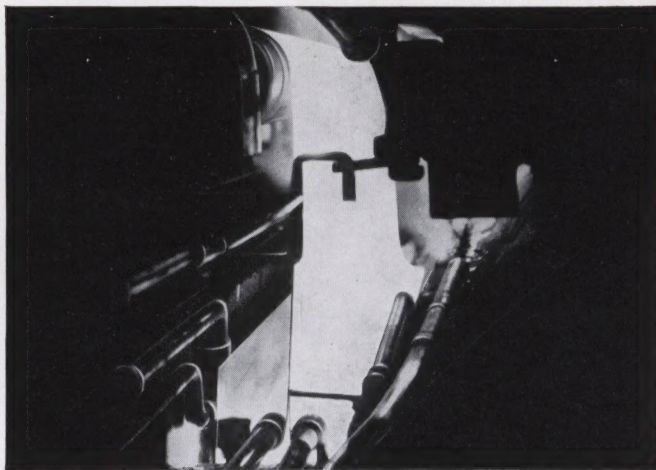
**THERMOLUX** — Control of daylight for interior installations, or artificial illumination is now at the command of the architect. Thermolux diffuses light and directs it — downward, upward or straight across a room. Thermolux consists of mats of spun glass sandwiched between panels of clear or pattern glass. Thermolux, as partitions for offices, public buildings and homes, frees the designer from small-panel types of glass, being available in sizes up to 6 by 9 feet.



Flat (2) Glass

LIBBEY • OWENS • FORD





The formation of the sheet by the exclusive L.O.F. Flat Drawing Process is illustrated above. Here the glass is being drawn from the furnace melting tank and passed through carefully regulated gas flames and over the bending roll to the lehr. The flames impart a natural fire finish and lasting brilliance to the glass.

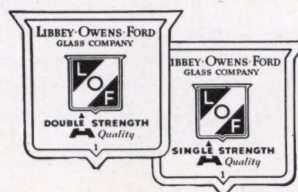
The exclusive Libbey-Owens-Ford Flat Drawing Process which was first introduced over 20 years ago has been constantly improved and refined until today, this process represents the most modern method of manufacturing sheet glass. The glass which is made as a result of this exclusive process is Clearer, Brighter and Flatter than any the industry has ever offered. When L.O.F. Quality

## PRACTICAL INFORMATION

### ON L.O.F. SHEET GLASS

Sheet Glass is used in double glazing, the exceptional flatness and clarity of this better glass become of vital importance.

Another secret of L.O.F. quality is longer and slower annealing. After the glass is drawn from the tank by the exclusive L.O.F. Sheet Glass Machine, it is thoroughly annealed in lehrs four or five times longer than those used in any other process. This slower and more thorough annealing eliminates strain, making a glass that is less brittle and consequently one that is easier to cut with far less breakage.



**NOTE:** For your protection, instruct contractors and builders to leave the labels on until final inspection has been made.

Because of these characteristics and the wide public acceptance enjoyed by all L.O.F. products, a closed specification for L.O.F. Quality Glass assures your client's satisfaction.

**TOLERANCES IN THICKNESS** — L.O.F. Sheet Glass Table of Thickness Standards is given in the table below:

	Thickness, in.		Lights per in.		Ar. Weight, oz. per sq. ft.
	Min.	Max.	Min.	Max.	
Single Strength .....	.087	.100	10.0	11.50	19.55
Double Strength .....	.118	.133	7.5	8.50	26.00
3/16" Sheet .....	.187	.200	5.0	5.35	40.00
7/32" Sheet .....	.212	.225	4.4	4.70	45.00
Picture Glass .....	.058	.068	14.7	17.0	13.00

### PERTINENT INFORMATION ON SHEET GLASS FOR THE ARCHITECT

**STANDARD SPECIFICATIONS** — All Flat Drawn Sheet Glass shall be Libbey-Owens-Ford A Quality Double Strength, except as otherwise noted, packed in Cushion Corner Cap Boxes. Each light shall bear the Libbey-Owens-Ford label, indicating strength and quality of the glass.

Libbey-Owens-Ford Flat Drawn Sheet Glass is manufactured in several grades and of varying thicknesses. Single Strength and Double Strength Sheet Glass are regularly supplied in two standard grades — A Quality and B Quality. Both are labeled. (A blue label indicates

Double Strength — a red label, Single Strength.)

**DIMENSIONS** — L.O.F. Sheet Glass is cut to dimensions well within the allowable limits of Government specifications, less than 1/32 in. per 1/8 in. thickness.

**FLATNESS** — The L.O.F. exclusive process of manufacture draws the glass into a flat sheet directly from the molten state. This process produces a glass so free from wave that it gives a clearer, sharper image.

**PACKING** — All L.O.F. Sheet Glass is shipped in Cushion Corner Cap packages — the neatest, cleanest, and nearest to moisture-proof method of packing so far developed.

Flat (3) Glass

# QUALITY FLAT GLASS PRODUCTS



# L.O.F. WINDOW CONDITIONING

(Double-Glass Insulation)







## PAYS BIG DIVIDENDS

In Client Satisfaction

And Savings



**FUEL SAVINGS AND COMPARATIVE HEATING COSTS**  
FIVE TYPES OF HOMES WITH AND WITHOUT WINDOW CONDITIONING AND ATTIC INSULATION

						
Attic area vented above insulation	1488.5 sq. ft.	770 sq. ft.	1143 sq. ft.	995 sq. ft.	782 sq. ft.	
Sidewalls net	2447.7 " "	1634 " "	1332 " "	1197.5 " "	695 " "	
Window area	540.3 " "	326 " "	363 " "	285 " "	280.8 " "	
Crack length	590.4 lin. "	389 lin. "	422 lin. "	365 lin. "	436 lin. "	
Unheated floor	None	None	None	None	782 sq. "	
Heating cost—no insulation—oil 7 cents per gallon	\$315.50	\$190.60	\$211.00	\$173.80	\$178.50	
Heating cost if attic is insulated	254.50	159.50	164.70	133.90	146.90	
Heating cost with window conditioning	241.25	144.55	159.50	131.90	137.00	
Savings due to insulation 3% minimum wool in attic floor	61.00 19.3%	31.10 16.3%	46.30 21.9%	39.90 23.0%	31.60 17.7%	
Savings due to window conditioning	74.25 23.5%	46.05 24.2%	51.50 24.4%	41.90 24.1%	41.50 23.3%	
Savings with both TOTAL	\$135.25 42.8%	\$ 77.15 40.5%	\$ 97.80 46.3%	\$ 81.80 47.1%	\$ 73.10 41.0%	
Heating cost—no insulation—oil 7 cents per gallon	\$245.00	\$149.30	\$161.00	\$136.00	\$139.55	
Heating cost if attic is insulated	198.00	124.90	125.00	104.40	114.75	
Heating cost with window conditioning	186.25	112.80	123.00	103.80	106.90	
Savings due to insulation 3% minimum wool in attic floor	47.00 19.2%	24.40 16.3%	36.00 22.4%	31.60 23.3%	24.80 17.7%	
Savings due to window conditioning	58.75 24.0%	36.50 24.4%	38.00 23.6%	32.20 23.7%	32.65 23.4%	
Savings with both TOTAL	\$105.75 43.2%	\$ 60.90 40.7%	\$ 74.00 46.0%	\$ 63.80 47.0%	\$ 57.45 41.1%	
Heating cost—no insulation—oil 7 cents per gallon	\$176.00	\$106.35	\$116.30	\$ 96.30	\$100.50	
Heating cost if attic is insulated	142.50	88.95	91.20	74.00	82.40	
Heating cost with window conditioning	134.25	80.80	88.40	73.65	77.00	
Savings due to insulation 3% minimum wool in attic floor	33.50 19.0%	17.40 16.4%	25.60 21.9%	22.30 23.2%	18.10 18.0%	
Savings due to window conditioning	41.75 23.7%	25.55 24.0%	28.40 24.3%	22.65 23.5%	23.50 23.4%	
Savings with both TOTAL	\$ 75.25 42.7%	\$ 42.95 40.4%	\$ 54.00 46.2%	\$ 44.95 46.7%	\$ 41.60 41.4%	

Window Conditioning will save approximately 23% of the fuel used in the typical uninsulated suburban residence, according to the results of a study of five representative types of houses, made by Alfred J. Offner, consulting engineer, past-president of the New York Society of Consulting Engineers, and Treasurer of the American Society of

Heating and Ventilating Engineers. These calculations (see table on this page) were based on the use of outside storm sash and storm doors on all openings or the equivalent use of modern double-glazed (weather-stripped) casement windows instead of ordinary windows.

If these houses had been well insulated before they were Window Conditioned, Mr. Offner's figures show that of the remaining fuel cost for an insulated house, Window Conditioning would save from 30 to 36%.

Window Conditioning does more than merely cut down fuel bills, checks cold drafts and prevents fogging on windows. It is essential to satisfactory winter air conditioning with its higher healthful humidity. Window Conditioning, Double-Glass Insulation, keeps the inner pane of glass comparatively warm even though the outer pane may be as cold as the outdoor air. This prevents condensation from taking place on the inner pane of glass.

There are many forms of prefabricated, double-glazed windows available in both wood and steel sash, and in both double hung and casement type.



Flat (4) Glass

**LIBBEY • OWENS • FORD**



# COLORED PLATE GLASS

Architects and Designers have found that Colored Plate Glass offers innumerable possibilities in creating unusually beautiful and decorative effects in both residences and public buildings. The colors available have increased since their introduction from three shades of Blue to a Peach, a Green, and now, a Golden Plate. Golden Plate when silvered, gives the same effect as the more expensive and difficult to make golden mirror. Too, Golden Plate should not be confused with the various ambers, which, when silvered, have a muddy or coppery appearance.



color chart at the top of the page gives you an idea of the range of colors available. A table of thicknesses and sizes in which L-O-F Colored Plate may be obtained will be found on page 7 of this catalog.

The degree of coloring in L-O-F Colored Plate

Glass is such that the glass retains its visibility when used for Picture Windows or decorative purposes. The



## DECORATED PLATE GLASS AND MIRRORS

Illustrated on this page are examples of what may be accomplished with Decorated Colored Plate Glass. This process, which involves either etching or sand blasting, preferably sand blasting, designs on the glass, opens up a new field of architectural decoration, in banks, libraries, railroad cars and many types of public buildings. After the design has been applied to the glass, it may be silvered all over or merely on the flat surfaces, depending upon the effect desired. To a limited degree, it is possible to obtain an effect of middle tone or shading. Sizes are only limited by the sizes in which Plate Glass, either Clear or Colored, is available. See the table on page 7 for this information.



Flat (5) Glass

# QUALITY FLAT GLASS PRODUCTS



# L.O.F POLISHED

# PLATE GLASS

Libbey.Owens.Ford Polished Plate Glass is manufactured in plants fitted throughout with the finest and most modern equipment. Only raw materials of highest quality are used. The sparkling luster and brilliance characteristic of L.O.F Plate Glass are a result of grinding and polishing by highly accurate machines. Grinding removes surface inequalities as the glass reaches this stage of manufacture. Polishing, which imparts distinctive beauty to L.O.F Plate Glass is accomplished by felt-covered rotating discs. Each light of glass is carefully inspected and graded before it receives the identifying L.O.F label. Because of its superior finish, unusual clearness and enduring brilliance, discriminating architects and builders prefer and specify Libbey.Owens.Ford Polished Plate Glass for an increasing number of uses.

## PRACTICAL INFORMATION

The very finest Polished Plate Glass, which is used almost exclusively in making the costliest mirrors, is known as "Silvering Quality." Owing to the high cost of selecting this quality, it is never specified for building purposes. The next quality is called "Mirror Glazing" and is often used for high-grade glazing work, but is seldom specified in sizes over 20 sq. ft. Most of the plate glass used in glazing is known as "Glazing Quality." Definite requirements for tolerances in thickness and dimensions are set up in U. S. Government specifications. The general requirements under U. S. Standards are:

## POLISHED PLATE GLASS FOR MIRRORS

**MIRRORS** have become, in many instances, an integral part of architectural design. In modern residences, as well as in stores and public buildings, they form an important part of the interior decorative motif. As the use of silvered plate glass continues to broaden, its specification and adaptation become more and more a province of architecture.

Libbey.Owens.Ford Polished Plate Glass is noted for its brilliant polish and freedom from imperfections.

**STANDARDS OF QUALITY** — For the guidance of the architect and owner and for the protection of the mirror manufacturer, the following standards of quality have been approved by the Mirror Manufacturers Association of America.

**THICKNESS** — Plate glass mirrors of commercial standard quality shall be between 3/16 and 5/16 of an inch thick. If specific thicknesses are ordered, a variation of 1/32 in. plus or minus the given thickness shall be allowed.

Flat (6) Glass



# LIBBEY . OWENS . FORD



**SILVERING** — All commercial standard quality mirrors shall be silvered in an approved manner and guaranteed for a period of one year from the date of manufacture unless the mirrors are subjected to unusual conditions, such as open weather, moist walls, steamed rooms, direct sunlight or similar conditions.

### TOLERANCES IN THICKNESS

The maximum and minimum thickness allowed shall not be more than the given thickness plus or minus one half the difference between the standard thicknesses, although for 1/4 in. glass occasional plates as thick as 5/16 in. are supplied. The general variation in thickness should not be more than 1/32 in. for individual lights under 10 sq. ft., in thicknesses up to 1/4 in. The variation in lights over 1/4 in. in thickness should not exceed one half the total tolerance for that thickness.

### HOW TO SPECIFY PLATE GLASS

In specifying Polished Plate Glass and showing it on plans, indicate that it is to be manufactured by Libbey-Owens-Ford Glass Co. of (—) quality and (—) thickness in accordance with U. S. Government Standards.

### HOW TO SPECIFY COLOR-CLEAR PLATE GLASS

When Color-Clear Plate Glass is to be used, insist on Libbey-Owens-Ford water-white color-clear Polished Plate Glass of 1/4" thickness and proper size.

### HOW TO SPECIFY COLORED PLATE GLASS

Where Polished Colored Plate Glass is specified or shown on plans, it shall be manufactured by Libbey-Owens-Ford Glass Co., and shall be of (—) quality and (—) thickness (insert quality and thickness) in accordance with U. S. Government Standards.



**Table of Sizes and Thicknesses  
POLISHED PLATE GLASS - CLEAR  
and COLORED - COLOR CLEAR**

Product	Thickness	Standard Maximum Size	Maximum Size Special Order
Polished Plate Glass	1/8"	72 x 74	74 x 144
	13/64"	72 x 74	74 x 144
	1/4"	124 x 170	126 x 250
	3/8"	100 x 150	100 x 200
	1/2"	100 x 160	100 x 200
	5/8"	80 x 140	100 x 160
	3/4"	80 x 130	100 x 150
	7/8"	60 x 100	70 x 100
	1"	60 x 100	70 x 100
	1 1/4"	60 x 100	70 x 100
Colored Plate Glass			
	Standard Blue	7/32"	100 x 140 110 x 170
	Medium Blue	7/32"	100 x 140 110 x 170
	Dark Blue	7/32"	100 x 140 100 x 170
	Peach	7/32"	100 x 140 100 x 170
	Standard Green	7/32"	95 x 120 100 x 150
	Golden	7/32"	95 x 120 100 x 150
Color Clear Plate Glass	1/4"	70 x 140	90 x 140

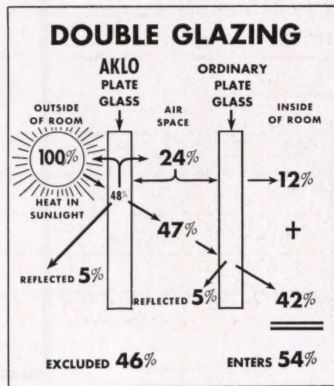
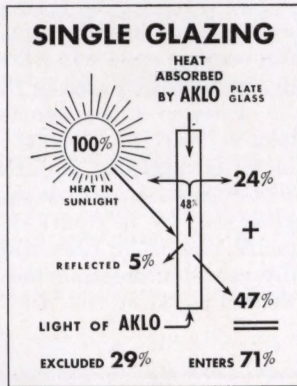
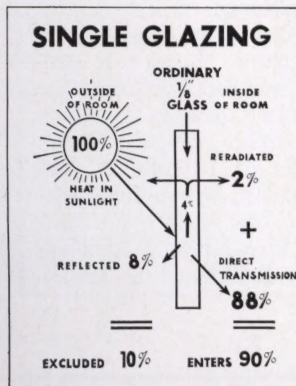
## AKLO HEAT ABSORBING PLATE GLASS

**AKLO** Plate Glass is a glass of special chemical composition that has the unique property of absorbing solar heat. It does this by absorbing the infrared rays of sunlight. It is a practical aid in solving the problem of transmission of solar heat into all types of buildings.

It is particularly desirable in all places where clear vision is necessary but where the heat of the sun must be excluded — in florists shops, in grocery windows displaying fruits, vegetables and other perishable merchandise, as well as in homes and offices, and particularly in air con-

ditioned buildings and residences to reduce the summer air conditioning load.

Even when air conditioning equipment is installed to insure comfortable temperatures by artificial means, **AKLO** Plate Glass reduces the cost of operating that equipment by reducing the total summer cooling load for a given window area. Double glazing, of course, is always recommended and is particularly effective with air conditioning equipment. **AKLO** Plate Glass greatly increases air conditioning efficiency as is evident from the charts.



### HOW TO SPECIFY AKLO PLATE GLASS

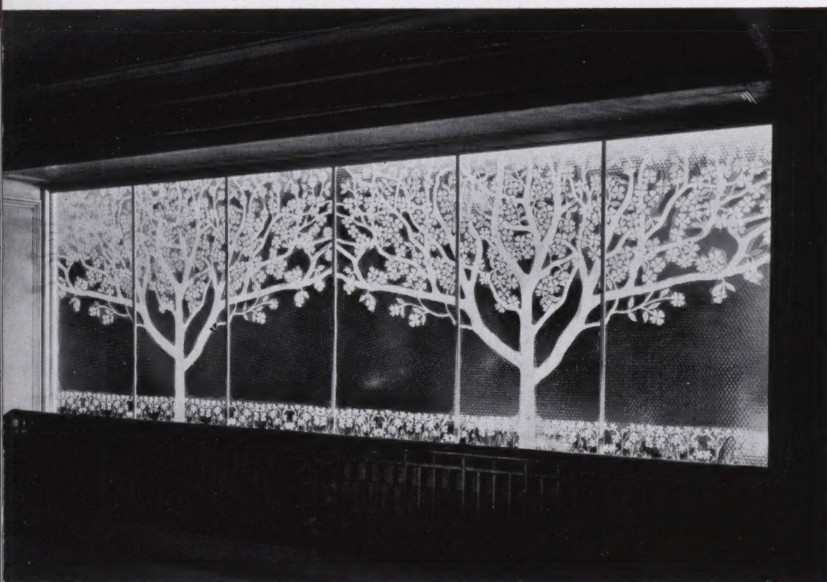
In buildings and homes exposed to the direct rays of the sun, specify **Aklo** Heat-Absorbing Plate Glass of suitable size and thickness.

Product	Standard Maximum Size	Maximum Size Possible on Special Order
Aklo Plate Glass		
Thickness	Maximum Size	Maximum Size Possible on Special Order
1/4"	70 x 100	100 x 130
1/8"	40 x 60	60 x 80

Flat (T) Glass



# BLUE RIDGE FIGURED AND WIRE GLASS



A novel decorated glass partition made of Luminex Wire Glass in the Henry Grady Hotel, Atlanta, Ga. George Harwell Bond, Architect. Atlanta.

## BLUE RIDGE FIGURED AND WIRE GLASS

This catalog of Blue Ridge Figured and Wire Glass provides Architects, Engineers and Decorators with factual information to aid them in choosing and specifying appropriate patterns, types and surface finishes of our glass. Pictures and brief descriptions of some interesting installations in residences, hotels, stores, offices and industrial plants attest to its functional value and eye appeal.

**A Diversified Line of Products:** For list of Patterns, Thicknesses, Sizes and Weights see the table on page 9. Pages 10, 11, 12 and 13 contain illustrations of the patterned glasses and useful information about the properties of each.

Blue Ridge Glasses are carried in stock by leading glass jobbers and glazing contractors or can be furnished promptly by them through quick shipment of any pattern, size and thickness from the factory's ample supplies.



## THE SIX BASIC FUNCTIONS OF FIGURED AND WIRE GLASS

- 1 To provide effective illumination of glass enclosed areas.
- 2 To carry out a desired architectural motif or decorative treatment.
- 3 To provide the required degree of privacy by obstructing the view.
- 4 To modify temperatures in commercial and industrial buildings. (Aklo)
- 5 To retard the spread of fire from one building to another. (Wire Glass)
- 6 To enhance the value of fluorescent lighting.

## STANDARD SPECIFICATIONS

### Underwriters' Requirements

#### How to Specify Blue Ridge Figured or Wire Glass

Where Figured or Polished Wire or Obscure glass is specified herein, or shown on plans, it shall be (..) inches in thickness and shall be (..) pattern (specify thickness and pattern desired), and shall be manufactured by the Blue Ridge Glass Corporation.

If a surface finish other than plain rolled is desired, the type of surface finish, such as Satinol or Frosted, should be specified.

The Standard Satinol or Frosted (Glare Reducing) Finish Specification is: "Where Figured or Obscure glass is specified herein or shown on plans, it shall be (..) inches in thickness and shall be (..) pattern Satinol (one surface or two surfaces), or have Frosted, (Glare Reducing) finish on both surfaces, and each light shall bear the label of Blue Ridge Glass Corporation."

### Underwriters' Requirements

The rules of the National Board of Fire Underwriters limit the size of wire glass which can be glazed in openings exposed to fire hazard. In no case shall the unsupported area of the glass measure more than 48 inches in either dimension or exceed 720 square inches (5 sq. ft.) Typical maximum sizes which satisfactorily meet that requirement are 15 x 48, 18 x 40, 20 x 36 and 24 x 30. It should also be noted that wire glass used for this purpose must be set in non-inflammable materials. Blue Ridge Wire Glass is approved fire retardant bearing number R-2129 of the Underwriters' Laboratories, Inc.



Flat (8) Glass

LIBBEY • OWENS • FORD



# BLUE RIDGE FIGURED AND WIRE GLASS

## PATTERNS, THICKNESSES, SIZES AND WEIGHTS

Patterns and Kinds of Glass	Thickness Inches	Maximum Width Inches	Maximum Length Inches	Approximate Weight per Sq. Ft., Lbs. (Glass only)
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### ROLLED FIGURED GLASS—FIRE POLISHED SURFACES

Hammered, Ribbed, Luminex, Skytex, Velvex, Industrex, Diffusex, Florex, Mazex, Pebblex, Sterlex, Reglex, Muralex	$\frac{1}{8}$	48*	132	$1\frac{3}{4}$
Louvrex, Flutex	$\frac{1}{8}$	54	132	$1\frac{3}{4}$
Hammered, Ribbed, Luminex, Skytex, Velvex, Industrex, Diffusex, Florex, Mazex, Pebblex, Sterlex, Reglex, Muralex, Prism, Transex	$\frac{7}{32}$	48*	136	$2\frac{3}{4}$
Louvrex, Flutex, Reedex	$\frac{7}{32}$	54	136	$2\frac{3}{4}$
Hammered, Ribbed	$\frac{3}{8}$	48	90	5
Hammered, Ribbed	$\frac{1}{2}$	48	90	6

### WIRE GLASS

Hammered, Ribbed, Luminex, Skytex, Velvex, Industrex, Diffusex, Florex, Mazex, Pebblex, Sterlex	$\frac{1}{4}$	48*	144	$3\frac{1}{2}$
Hammered, Ribbed	$\frac{3}{8}$	48	90	5
Hammered, Ribbed	$\frac{1}{2}$	48	90	$6\frac{1}{4}$
Polished-Conventional Hexagonal Mesh	$\frac{1}{4}$	60	144	$3\frac{1}{2}$
Polished-Nuweld Diagonal Mesh	$\frac{1}{4}$	54	132	$3\frac{1}{2}$

### GLASS WITH FLAT SURFACE SATINOL PROCESSED

Louvrex, Flutex, Reedex	$\frac{7}{32}$	54	136	$2\frac{3}{4}$
Luminex, Velvex	$\frac{7}{32}$	48*	136	$2\frac{3}{4}$

### GLASS WITH BOTH SURFACES FROSTED (GLARE REDUCING FINISH)

Hammered, Ribbed, Luminex, Skytex, Industrex (Unwired)	$\frac{1}{8}$	30	132	$1\frac{3}{4}$
Hammered, Ribbed, Luminex, Skytex, Industrex (Unwired)	$\frac{7}{32}$	30	136	$2\frac{3}{4}$
Hammered, Ribbed, Luminex, Skytex, Industrex (Wired)	$\frac{1}{4}$	30	144	$3\frac{1}{2}$

### POLISHED FIGURED GLASS

Louvrex, Flutex, Reedex, Diffusex, Pebblex, Reglex, Muralex	$\frac{7}{32}$	48	136	3
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### AKLO FIGURED AND WIRE GLASS

Hammered, Ribbed (Unwired— fire polished surfaces)	$\frac{1}{8}$	48	132	$1\frac{3}{4}$
Hammered, Ribbed (Unwired— fire polished surfaces)	$\frac{1}{4}$	48	136	$3\frac{1}{2}$
Hammered, Ribbed (Wired— fire polished surfaces)	$\frac{1}{4}$	48	144	$3\frac{1}{2}$
Hammered, Ribbed (Unwired— frosted glare reducing)	$\frac{1}{8}$	30	132	$1\frac{3}{4}$
Hammered, Ribbed (Unwired— frosted glare reducing)	$\frac{1}{4}$	30	136	$3\frac{1}{2}$
Hammered, Ribbed (Wired— frosted glare reducing)	$\frac{1}{4}$	30	144	$3\frac{1}{2}$
Polished Wire— (Conventional Hexagonal Mesh only)	$\frac{1}{4}$	48	144	$3\frac{1}{2}$

\*NOTE: Where maximum width is marked with asterisk, some patterns may be available up to 60 inches wide, depending on stock on hand.

Also, thicknesses greater than indicated above may be made to order by special arrangements.

Likewise, patterns other than Louvrex, Flutex, Reedex, Luminex, and Velvex may possibly be obtained with Satinol Finish, but  $\frac{7}{32}$  inch is the minimum thickness at all times.

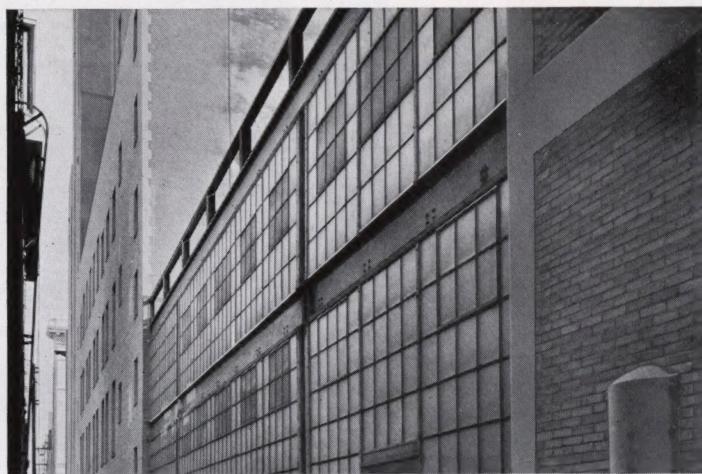
Flat (9) Glass

# QUALITY FLAT GLASS PRODUCTS



# BLUE RIDGE WIRE GLASS

## FIRE RETARDANT NO. R-2129

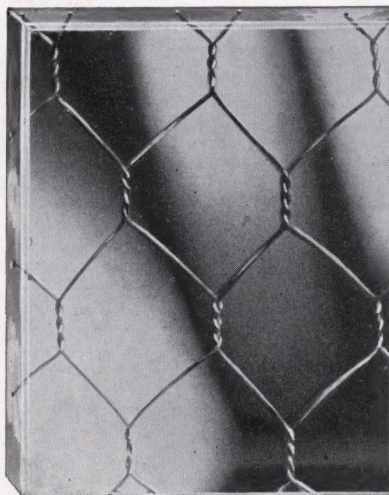


**STRENGTH:** Because wire glass is used so frequently to protect buildings and their valuable contents against damage by spreading fires, it is very important that wire glass be as strong as it is possible to make it. That is the way Blue Ridge Wire Glass is made.

Wire glass is specified and used because of its fire-retarding properties and the fact that it will generally remain in the frame even though broken by impact. The center line of the glass itself is its point of zero strain. Strain introduced by the difference in expansion between wire and glass should be at this point. If the wire netting is substantially closer to one surface than the other, the glass is weakened and thus more easily broken by impact or pressure. Tests conducted by a well-known physicist showed conclusively that glass with properly centered wire is consistently stronger than glass of the same thickness and pattern in which the wire is decidedly off center. The difference was as high as 42% in some of the comparisons.

Wire Glass of maximum strength is assured by specifying Blue Ridge because our manufacturing process keeps the wire netting approximately in the center of the glass at all times. Specifications and Underwriters' Requirements and Table of Patterns, Thicknesses and Sizes, covering Blue Ridge Wire Glass may be found on pages 8 and 9 of this catalog.

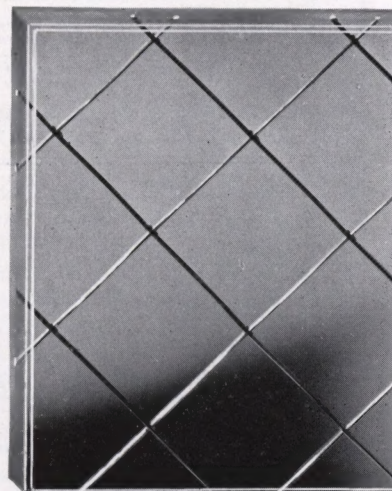
**APPEARANCE:** Blue Ridge Figured Wire Glass is made with chromium plated netting. This extra process, while more costly in manufacture, makes the glass unusually attractive and brighter in appearance. Another outstanding feature of our wire glass is its freedom from clusters of bubbles on the wire that detract from the appearance of the job. The wire, too, is the best from the standpoint of physical properties that can be obtained.



**POLISHED WIRE GLASS** is used in all openings where clear vision and the security of non-scatterable fire-retardant glass are desired. This Blue Ridge product is made of genuine polished plate glass with wire reinforcement.

Conventional mesh wire pattern Blue Ridge Polished Wire Glass (wire mesh shown actual size). Note that the wire is clean—no disfiguring bubbles on the twisted wire to mar the sharp outline or distort the vision.

Blue Ridge Nuweld Polished Wire Glass (mesh shown actual size). The wires are welded together at each intersection to form a pleasing diagonal pattern.



Flat (10) Glass

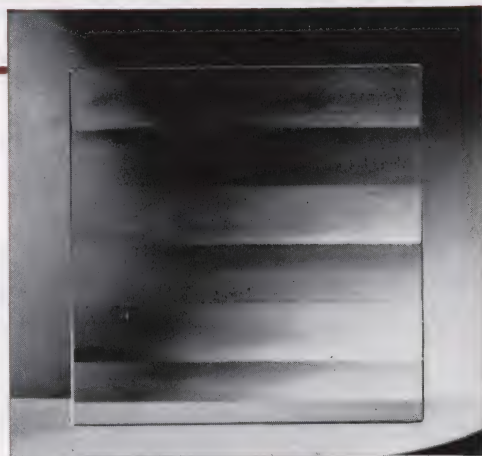
# LIBBEY • OWENS • FORD



# LOUVREX-FLUTEX-REEDEX

## THREE HIGHLY DECORATIVE

## BLUE RIDGE PATTERNED GLASSES



← Louvrex Cross Section  
1/4 Actual Size

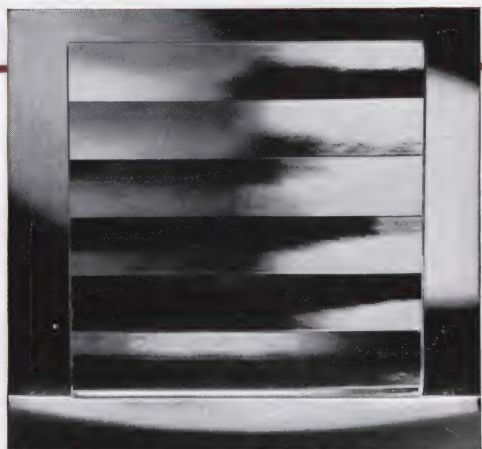
### LOUVREX

Made in  $\frac{1}{8}$  and  $\frac{7}{32}$  in. thicknesses with fire finished surfaces and in  $\frac{7}{32}$  in. thickness only with flat surface mechanically ground and polished; also with flat surface Satinol processed.

**DESCRIPTION**—The Louvrex pattern is formed by a series of plane surfaced strips, 1 in. wide, alternately ascending and descending. In appearance, these resemble louver strips in venetian blinds. Since the eye tends to measure from valley to valley across the ridge — a distance of 2 in. — Louvrex gives the effect of a pattern 2 in. wide. It is relatively transparent but Satinol processing gives it great obscurity and wide diffusion of light.

**USES** — Louvrex was created to meet the demand for a decorative glass with a distinctly modern feeling. It is widely used for both interior and exterior glazing, for partitions, screen partitions and many other uses.

Approximate Light Transmission — unwired 90.4% (not made in wire glass).



← Flutex Cross Section  
1/4 Actual Size

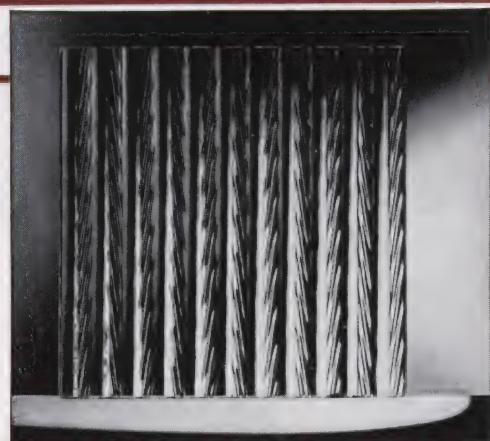
### FLUTEX

Made in  $\frac{1}{8}$  and  $\frac{7}{32}$  in. thicknesses with fire finished surfaces and in  $\frac{7}{32}$  in. thickness only with flat surface mechanically ground and polished; also with flat surface Satinol processed.

**DESCRIPTION** — The Flutex pattern is more pronounced than that of Louvrex. It consists of a series of adjoining convex flutes 1 in. wide, each being in effect, an elongated magnifying glass.

**USES** — The uses for Flutex and its characteristics are largely the same as those of Louvrex. Where the architect or designer desires the effect of a sharper, more definite pattern, Flutex may be better suited.

Approximate Light Transmission — unwired 89.0% (not made in wire glass).



← Reedex Cross Section  
1/2 Actual Size

### REEDEX

Made in  $\frac{7}{32}$  in. thickness only with fire finished surfaces and with flat surface mechanically ground and polished; also with flat surface Satinol processed.

**DESCRIPTION** — Reedex has a unique and charming pattern made up of a series of  $\frac{1}{2}$  in. corrugations, on the ridge of which is an interesting herringbone design. Viewed as a whole, Reedex, as the name implies produces a reed-like effect that makes it ideally suited to modern design. Reedex is high in light transmission and but slightly more obscure than either Louvrex or Flutex.

**USES** — The more obvious uses for Reedex are found in windows, doors, vestibule panels, transoms and partitions. Because of its novel pattern however, Reedex is particularly suitable for effective display lighting of both interiors and exteriors.

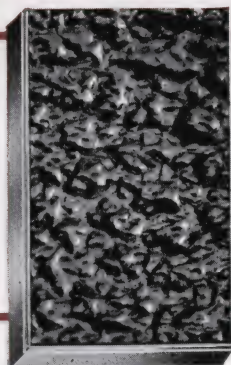
Approximate Light Transmission — unwired 86.7% (not made in wire glass).

Flat (11) Glass

# QUALITY FLAT GLASS PRODUCTS



# DESCRIPTION AND USES OF BLUE RIDGE FIGURED GLASS



(Pattern shown actual size)

## PEBBLEX

Made in  $\frac{1}{8}$  and  $\frac{7}{32}$  in. thicknesses with fire polished surfaces and in  $\frac{7}{32}$  in. thickness with smooth surface ground and polished. (Also available in  $\frac{1}{4}$  in. wired glass.)

**DESCRIPTION** — The irregular pebbled design is deeply imprinted, highly obscure and unusually brilliant in appearance. It diffuses light at a very wide angle in all directions.

**USES** — A very popular glass for office partitions and for general interior glazing. Its obscurity affords privacy to persons within the room.

Approximate Light Transmission—unwired 79.7%, wired 73.7%.

## STERLEX

Made in  $\frac{1}{8}$  and  $\frac{7}{32}$  in. thicknesses with fire polished surfaces rolled only and in  $\frac{1}{4}$  in. wired glass.

**DESCRIPTION** — Sterlex is a highly obscure pebbled design imprinted to a medium depth. Somewhat finer in texture than Pebblex, it is an excellent diffusing glass that spreads light at a wide angle in all directions.

**USES** — Its sparkling appearance and uniform distribution of light make Sterlex popular for doors, partitions and general interior glazing.

Approximate Light Transmission—unwired 87.2%, wired 81.2%.



(Pattern shown actual size)



(Pattern shown actual size)

## MURALEX

Made in  $\frac{1}{8}$  and  $\frac{7}{32}$  in. thicknesses with fire polished surfaces and in  $\frac{7}{32}$  in. with smooth surface ground and polished.

**DESCRIPTION** — A finely engraved pattern of indeterminate design that is very easy to clean. It is fairly obscure and it provides medium distribution of light at a moderate angle.

**USES** — The modest, dignified beauty of Murex harmonizes with any style of architecture or decoration. It is used widely in partitions, doors and transoms of fine buildings.

Approximate Light Transmission—unwired 86.0% (not made in wire glass).

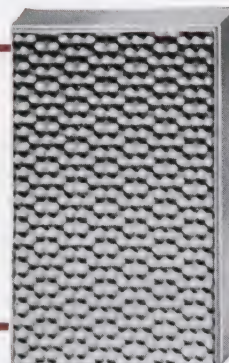
## DIFFUSEX

Made in  $\frac{1}{8}$  and  $\frac{7}{32}$  in. thicknesses with fire polished surfaces and in  $\frac{7}{32}$  in. thickness with smooth surface ground and polished. (Also available in  $\frac{1}{4}$  in. wired glass.)

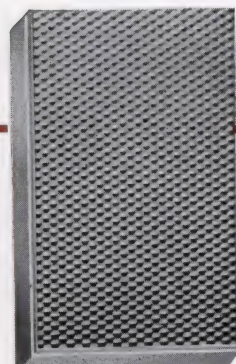
**DESCRIPTION** — Small, slightly elevated lenses, grouped in an attractive manner and spaced to avoid dirt-collecting pockets. Cleaning is easy with moist cloth or sponge. Provides uniform illumination with moderate angle of diffusion.

**USES** — Primarily for interior partitions, doors and transoms but equally effective for any glazing where softly diffused light is desired.

Approximate Light Transmission—unwired 87.6%, wired 81.6%.



(Pattern shown actual size)



(Pattern shown actual size)

## INDUSTREX

Made in  $\frac{1}{8}$  and  $\frac{7}{32}$  in. thicknesses unwired and  $\frac{1}{4}$  in. wired — fire polished surfaces, also Frosted (Glare Reducing) Finish.

**DESCRIPTION** — Tiny lens-shaped figures compactly arranged effective illumination by even diffusion of light at medium angle. Industrex can be cleaned easily with a moist cloth or sponge. Moderately obscure.

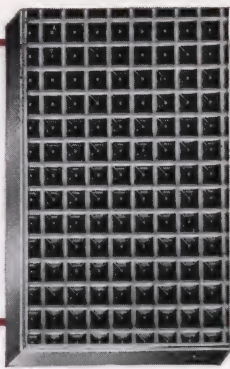
**USES** — Primarily for factory glazing but also adaptable to some types of commercial structures. *Not recommended for partitions in fine office buildings, etc.* Approximate Light Transmission — unwired 88.2%, wired 82.2%.



Flat (12) Glass

LIBBEY • OWENS • FORD





(Pattern shown actual size)

## REGLEX

Made in  $\frac{1}{8}$  and  $\frac{7}{32}$  in. thicknesses with fire-polished surfaces and in  $\frac{7}{32}$  in. thickness with smooth surface ground and polished.  
**DESCRIPTION** — The Reglex design is formed by pyramidal-shaped indentations — 64 to the square inch — which diffuse light remarkably well in a cross shaped light pattern and also provide great obscurity.

**USES** — For general interior glazing, especially effective in partitions and doors.

Approximate Light Transmission — unwired 52.3% (not made in wire glass).

## SKYTEX

Made in  $\frac{1}{8}$  and  $\frac{7}{32}$  in. thicknesses unwired and in  $\frac{1}{4}$  in. wired fire-polished surfaces also Frosted (Glare Reducing) Finish.

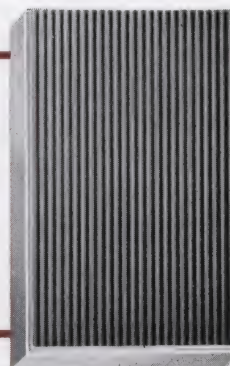
**DESCRIPTION** — A very obscure pattern of eight parallel ribs per inch which drain off condensation and diffuse light along one axis only (perpendicular to ribs). Skytex is usually glazed with ribs vertically to spread light in horizontal plane.

**USES** — Skytex is used chiefly in skylights but it is equally suitable for general industrial glazing.

Approximate Light Transmission — unwired 78.9%, wired 72.9%.



(Pattern shown actual size)



(Pattern shown actual size)

## RIBBED

Made in  $\frac{1}{8}$ ,  $\frac{7}{32}$ ,  $\frac{3}{8}$  and  $\frac{1}{2}$  inch thicknesses unwired, and  $\frac{1}{4}$ ,  $\frac{3}{8}$  and  $\frac{1}{2}$  inch thicknesses wired — all with fire-polished surfaces also with Frosted (Glare Reducing) Finish.

**DESCRIPTION** — This pattern consists of approximately twenty-two fine parallel ribs per inch which spread light along one axis only, perpendicular to ribs. Ribs usually run vertically to spread light in a horizontal plane.

**USES** — Factory glazing, skylights, etc.

Approximate Light Transmission — unwired 84.4%, wired 78.4%.

## LUMINEX

Made in  $\frac{1}{8}$  in. and  $\frac{7}{32}$  in. thicknesses unwired and  $\frac{1}{4}$  in. wired — fire-polished surfaces and Frosted (Glare Reducing) Finish, also  $\frac{7}{32}$  in. thickness with smooth side Satinol Processed.

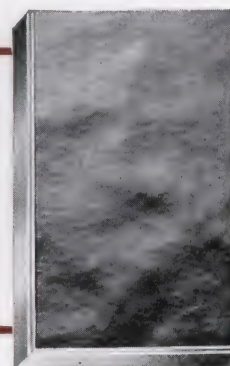
**DESCRIPTION** — An almost transparent pattern of extremely fine texture that is very easy to clean. Luminex is high in light transmission with practically no diffusion.

**USES** — Recommended for industrial plants or general commercial glazing where it is desirable to admit maximum light.

Approximate Light Transmission — unwired 88.4%, wired 82.4%.



(Pattern shown actual size)



(Pattern shown actual size)

## VELVEX

Made in  $\frac{1}{8}$  in. and  $\frac{7}{32}$  in. thicknesses unwired and  $\frac{1}{4}$  in. wired — fire-polished surfaces and Frosted (Glare Reducing) Finish, also  $\frac{7}{32}$  in. thickness with smooth side Satinol Processed.

**DESCRIPTION** — Light passing through this semi-transparent, non-diffusing glass creates an illusion of pattern depth. Easily cleaned.

**USES** — Very popular for interior glazing — shower bath doors, partitions, doors and transoms.

Approximate Light Transmission — unwired 89.0%, wired 83.0%.

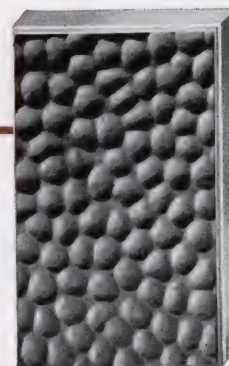
## HAMMERED

Made in  $\frac{1}{8}$ ,  $\frac{7}{32}$ ,  $\frac{3}{8}$  and  $\frac{1}{2}$  in. thicknesses unwired, and  $\frac{1}{4}$ ,  $\frac{3}{8}$  and  $\frac{1}{2}$  in. wired — all with fire-polished surfaces, also with Frosted (Glare Reducing) Finish.

**DESCRIPTION** — The design is formed by a series of raised, adjacent lenses which distribute light at a narrow angle of diffusion and provide relatively high obscurity.

**USES** — Hammered glass is widely used for industrial glazing, both exterior and interior.

Approximate Light Transmission — unwired 90.0%, wired 84.0%.



(Pattern shown actual size)

Flat (13) Glass

QUALITY FLAT GLASS PRODUCTS



# BLUE RIDGE DECORATIVE GLASS

## IN RESIDENCES



LEFT: A floor to ceiling partition made of large panels of Louvrex in a Glen View, Ill., residence — George Fred Keck was the architect.



RIGHT: In his home, Architect Lester C. Tichy of New York, uses a partition of Louvrex to furnish light from the picture window to the room beyond the partition.

### BLUE RIDGE DECORATIVE GLASS LOUVREX — REEDEKX — FLUTEX

#### How Blue Ridge Decorative Glass contributes to Design and Decoration.

● Smart design and unusual effects—achieved through the use of Louvrex, Flutex, and Reedekx—are pictured on this and the following three pages.

In many cases Satinol finish on one or both surfaces has been employed to enhance the appearance of the installation, improve illumination by diffusing light and to provide greater privacy.

Maximum dimensions of 54 in. x 136 in.\* permit large surfaces unmarred by joints and make both Louvrex and Flutex ideal for double-glazed walls. Used in this manner, such walls become insulated areas.

\*As pattern runs parallel with the 136 in. edge, the largest checkerboard effect obtainable by double-glazing is 54 in. x 54 in.



ABOVE: Light for the kitchen through the Flutex Glass panel. Architect, Clarence W. N. Mayhew, San Francisco.



ABOVE: Flutex Glass enhances the attractiveness of this cupboard.



ABOVE: Here a shower screen of Polished Flutex enclosing the square tub does triple-duty. It adds distinction, admits plenty of light and provides ample privacy.



ABOVE: A study in a Chicago residence where paneled walls of Louvrex provide plenty of light with partial obscurity. Architects—Pereira & Pereira, Chicago.



ABOVE: A dining room door glazed with Satinol Flutex. Note the interesting effect obtained by alternating the directional lines of the pattern. Philip D. West, Architect, Chicago.



Flat (14) Glass

LIBBEY • OWENS • FORD



# BLUE RIDGE DECORATIVE GLASS

## IN STORES AND SHOPS



ABOVE: An excellent example of what Louvrex contributes to the interior of Marcus & Company's smart 5th avenue, N. Y. store. The balcony partition of bent Louvrex transmits light into the executive offices beyond. Clarice Saymon, Designer.



LEFT ABOVE: Showrooms of the International Silver Co., Fifth Avenue, New York. Carl Conrad Braun, Architect. Satinol Louvrex provides an appropriate setting for the display of fine silverware.



RIGHT ABOVE: Bent, Satinol Flutex is used in the lighting installation made by the Polarizing Instrument Co. of New York in Gunther's — famed furriers of that city.



ABOVE: A charming fitting room in a smart dress shop. Satinol Flutex Glass provides privacy and softly diffused light. Mills, Rhines, Bellman & Nordhoff Inc., Architects.

RIGHT: The exterior of Marcus & Company's Store. A wide expanse of Louvrex is double-glazed with the glass pattern crossed to form an interesting checkerboard design. The individual panels are 36"x30".



ABOVE: Bent Louvrex glass provides privacy and ample light for the sale of precious gems by Marcus & Co., Jewelers, Fifth Avenue, New York. Note the pleasing effect obtained with this linear pattern.

LEFT: A Minneapolis Department Store has equipped its Millinery department with these attractive "Privacy Partitions" made of Satinol Louvrex Glass.

Flat (15) Glass

# QUALITY FLAT GLASS PRODUCTS



# BLUE RIDGE DECORATIVE GLASS

## IN HOTELS AND RESTAURANTS



ABOVE: The bright and cheerful modernization of the Rogers Park Hotel lobby. Satinol Louvrex in the skylight, plain Louvrex flanking the lobby entrance doors. James F. Eppenstein, Architect, Chicago.



ABOVE: The appealing front of the Grenadier Dining Room and Bar in the Detroit Leland Hotel is enhanced by the large windows glazed with Louvrex. Marie E. Stosskoff, Designer, Chicago. Consulting Architect, Ralph W. Hammett, Ann Arbor, Mich.



ABOVE: This modern entrance of Louvrex and Black Vitrolite welcomes every guest to the Rogers Park Hotel. James F. Eppenstein, Chicago, Architect.

In hotels and restaurants, the Blue Ridge Decorative Glasses — Louvrex, Flutex and Reedex — solve a dual problem for the architect and designer. They serve as pure decoration, to lend gaiety and life — to attract customers. They also serve the useful purpose of creating partitions, booths and extra rooms — privacy — with improved illumination. The result is both attractive and practical, as the illustrations will show.



ABOVE: The same windows as shown above in the Grenadier Dining Room and Bar, seen from the dining room. Notice how ample light is provided through the large panels of Louvrex without sacrificing privacy.



Flat (16) Glass

LIBBEY • OWENS • FORD



# BLUE RIDGE DECORATIVE GLASS

## IN HOTELS AND RESTAURANTS



ABOVE: The ultra-smart entrance to The Dome — Cocktail Lounge in the Sherman Hotel, Chicago. Both plain and Satinol Louvrex are used. Holabird & Root, Architects, Chicago.

BELOW: An attractive partition of Reedex in the Powder Room of the Excursion Steamer "Admiral" out of St. Louis, Mo. Miss Mazie Krebs, Designer, St. Louis.



ABOVE: A combination of Reedex, Louvrex and Vitrolite are used to frame and cover the marine mural which is painted on papyrus-like paper and lighted from behind. S. Lawrence Klein, Architect and Designer for McGinnis Restaurant, New York.



ABOVE: The eye-arresting beauty of Flutex is used to enclose the staircase well in the Commodore Perry Hotel, Toledo. Designer Alexander C. Rindskopf, Chicago, collaborated with Mills, Rhines, Bellman & Nordhoff, Architects, Toledo.



ABOVE: Satinol Louvrex was used in Hund's Restaurant, Detroit, to provide privacy and add a decorative note to the partitions.

Flat (17) Glass

# QUALITY FLAT GLASS PRODUCTS



# BLUE RIDGE DECORATIVE GLASS

## IN OFFICES



ABOVE: The attractive directional pattern of Flutex is utilized by Architect Irwin M. Johnson to glaze the windows in his offices in Oakland, California.



ABOVE: This picture of an office in the Carew Tower, Cincinnati, gives an excellent idea of what may be accomplished with decorative glass. The partition is glazed with bent Satinol Flutex. The door is glazed with Reedex.

ABOVE: This immense floor to ceiling light giving partition uses Satinol Louvrex for both decorative and practical purposes. It is in the Springfield office of the Illinois Bell Telephone Company. Holabird & Root, Architects, Chicago.



LEFT: Here Satinol Louvrex is used in the top and bottom lights of this office partition, plain Louvrex in the middle. A bent section carries the pattern around the turn. American Optical Company, Philadelphia, Pa. Silverman and Levy, Architects.



Flat (18) Glass

LIBBEY • OWENS • FORD



# BLUE RIDGE DECORATIVE GLASS

## IN OFFICES



ABOVE: Notice the "invisible joints" in this double-glazed Louvrex partition made up of several large panels of glass. This installation is in the Municipal Bldg., St. Charles, Ill. R. Harold Zook, Architect.



ABOVE: A bright, attractive office is screened from the reception room in the offices of the E. J. Hunt Company, Detroit. The glass is double-glazed Louvrex with Satinol finish on the outside to absorb reflection.

RIGHT: The horizontal lines of Flutex Glass lend a pleasing note to this smart reception room in the offices of the Chicago Vitreous Enamel Product Co., Chicago. Roy Blass, Chicago, Architect.



ABOVE: Screens of Louvrex with bent corners indicate how this decorative medium lends itself to modern streamlining. This is the Reception Room of the Portis Hat Company, Chicago. James F. Eppenstein, Architect, Chicago.

Flat (19) Glass

# QUALITY FLAT GLASS PRODUCTS



# THE BLUE RIDGE SATINOL PROCESS FINISH

BELOW: This drafting room in the offices of Architect Irwin M. Johnson is provided with ample, properly diffused light through the extremely large windows glazed with Satinol Flutex. From the exterior, as seen on page 17, the Flutex pattern adds to the design of the building.



ABOVE: An abundance of properly diffused, high-intensity light is flooded on working surfaces in the experimental laboratory of the Polarizing Instrument Corp., Rockefeller Center, N. Y., by concealing the lights behind panels of Satinol Louvrex. Each bank of lights is individually controlled.

BELOW: Notice how evenly and effectively the inner office area is lighted with borrowed light through the floor to ceiling partitions which are glazed with Satinol Louvrex Glass. Lighting conditions such as this assure almost ideal working space.



Satinol is a process or surface treatment that may be applied to one or both surfaces of Blue Ridge Figured Glass. It gives the glass a mellow satin-like finish. It transforms a semi-transparent non-diffusing glass into a glass that is quite obscure with excellent light diffusion. It thus gives a high general level of illumination, a light that is soft and restful, and complete privacy.

Satinol enables the architect and designer to use glasses which ordinarily are semi-transparent and non-diffusing (Luminex, Velvex, Louvrex, Flutex) as light-diffusing obscure glasses in the many instances where the architectural treatment calls for one of these designs.

In addition to these four patterns (Luminex, Velvex, Louvrex, Flutex) we also carry in stock Reedex 7/32 inch thickness with the flat surface Satinol processed. All other Blue Ridge patterns may be obtained with Satinol

finish by special arrangement.

The Satinol process is superior both to sandblasting and acid frosting—the only previous methods for obscuring glass. The reduction of light transmission with Satinol is relatively very small. Satinol finish on one surface reduces transmission by about 3%, only on two surfaces by about 6% — whereas, sandblasting reduces light transmission by about 16% on one surface and by 20% to 30% on both surfaces (depending on the pattern of the glass).

Satinol is also superior to sandblasting in that it does not spot and finger mark, or collect dust and dirt the way sandblasted glass does. Dust which may accumulate on the surface of Satinol-processed glass can be removed with a dry rag. It is thus quite easy to keep clean so that its light transmitting qualities are not reduced.



The Standard Satinol Specification is given on Page 8 of this catalog.

The label which appears on every light of genuine Satinol-Processed Blue Ridge glass states the degree of processing. It is your insurance against substitution of glass with undesirable surface treatment such as sandblasting or common acid frosting.

The standard specification for Satinol finish states that each light bears the proper Satinol label as illustrated here. This is for the protection of all concerned.



Flat (20) Glass



## LIBBEY • OWENS • FORD



# BLUE RIDGE AKLO FIGURED AND WIRE GLASS

## HEAT-ABSORBING FIGURED AND WIRE GLASS

### WHAT AKLO GLASS IS

Blue Ridge AKLO is a blue-green low-expansion figured or wire glass that absorbs most of the sun's heat, admits an adequate amount of daylight, yet substantially reduces glare and eyestrain. Aklo figured or wire glass  $\frac{1}{4}$  inch thick absorbs about 97½% of the infrared (heat) rays of the sun.

### AKLO PROVIDES PROTECTION AGAINST HEAT RADIATION FROM THE SUN

Its use results in a positive reduction in shop or room temperatures and the maintenance of much more comfortable temperatures in the areas near sun-exposed windows. The use of AKLO reduces the amount of solar heat entering the building (through windows, skylights and transoms) by as much as 48%. Most important of all, Blue Ridge AKLO Glass accomplishes this without excessive reduction in translucency and thus provides better illumination the year around.

### AKLO GLASS RESULTS IN MANY INDIRECT SAVINGS

Besides reducing glare and providing cooler summer temperatures indoors, AKLO figured or wire glass eliminates painting or white-washing of glass, reduces product spoilage, increases worker safety, decreases errors, speeds production and substantially improves worker efficiency. Used in windows and skylights instead of ordinary glass, it creates better working conditions and produces numerous direct savings in plant maintenance.

### AKLO REDUCES AIR CONDITIONING COSTS

AKLO glass is particularly vital in air conditioned buildings. It takes only about 100 sq. ft. of AKLO wire glass in a horizontal skylight and from 200 to 250 sq. ft. in a westerly window to reduce the "design" cooling load by the equivalent of one ton of refrigeration as compared to ordinary glass. This amount of AKLO glass completely installed costs considerably less than a ton of extra



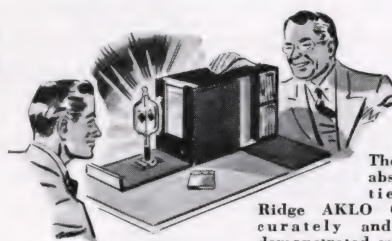
capacity and cooling equipment and the cost of operating the equipment thereafter is also reduced. AKLO Glass should be specified in combination with all air conditioning installations for reduction of cooling load and operating costs.

### SEND FOR FULL INFORMATION

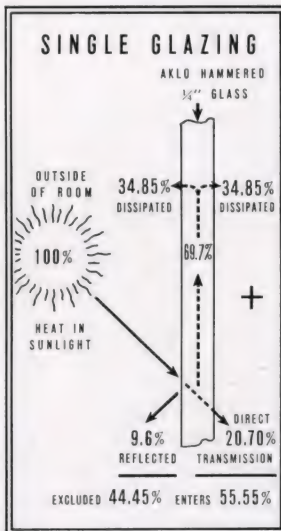
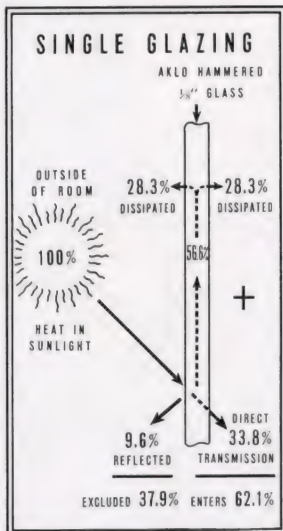
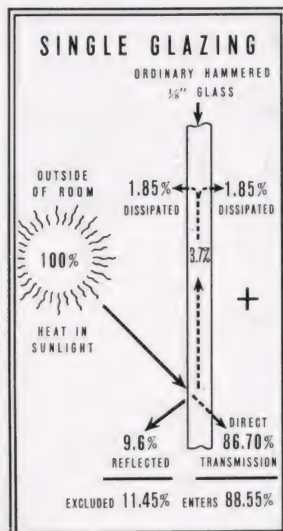
For more detailed technical information about AKLO Glass, its properties and installation send for our 12-page illustrated AKLO booklet — or refer to the Engineering Edition of Sweet's Catalogue.

### SEEING IS BELIEVING

See this convincing Aklo Demonstration in your own office.



The unusual heat absorption qualities of Blue Ridge AKLO Glass are accurately and dramatically demonstrated with this highly sensitive Radiometer. We would like you to see this demonstration in your office. No obligation.



**STANDARD SPECIFICATIONS FOR AKLO GLASS** — Specified by U. S. Govt. as "Type H." "All flat and sloping skylights and all windows designed to receive obscure figured glass, except skylights or windows facing north or permanently shaded, shall be glazed with ALKO INDUSTRIAL GLASS having a co-efficient of expansion of approximately 20% less than ordinary figured or wire glass. (Here designate the desired pattern and whether wired or unwired, and desired thickness.) If severe conditions of glare must be overcome specify FROSTED AKLO ..... (Hammered or Ribbed pattern), ..... (Wired or unwired, and thickness,  $\frac{1}{8}$ " or  $\frac{1}{4}$ "). (Polished Wire  $\frac{1}{4}$ " if transparency desired)

"All other skylights and window areas facing north or in permanent shade, and designated on the drawings to receive obscure glass, shall be glazed with non-heat-absorbing glass of the patterns, thicknesses and types indicated herein."

Flat (21) Glass

# QUALITY FLAT GLASS PRODUCTS



# REDUCING GLARE AND EYESTRAIN WITH



## FROSTED AKLO GLASS

LEFT: "A soft well diffused light of uniform intensity over the entire working surface," is the way Mr. C. W. Dabney, Purchasing Agent of Champion Paper & Fibre Co., describes the daylighting in their inspection room glazed with Frosted Aklo Glass.

RIGHT: The modern way of daylighting offices. The three top lights are Frosted Aklo; the bottom light is Aklo polished wire. With this arrangement plenty of diffused light is admitted, heat is kept out. No blinds or awnings are necessary.



## WHERE GLARE IS AN IMPORTANT PROBLEM USE AKLO FROSTED GLASS

● While fire-polished Aklo (Figured or Wire Glass) definitely reduces glare, it is strongly recommended that Frosted (Glare Reducing) Aklo Glass be used in all cases where glare is an important consideration. The purpose of this Frosted (Glare Reducing) Finish is to give uniformity of light by diffusing it widely and at the same time subdue the surface brightness of the glass itself. Just as the frosting of light bulbs was an important advance in the field of artificial lighting, so is the Frosted, (Glare Reducing) Aklo finish a great improvement in the daylighting of factories, stores and office buildings.

### THE NATURE OF GLARE

Glare is the presence, within the field of vision, of any brightness, of such a character as to cause eye fatigue, discomfort, annoyance, or interference with vision. Seeing is reduced when glare is present because the pupil of the eye is contracted and less light reaches the eye. There are two types of glare — direct and reflected — both of which can be overcome with Frosted Aklo (Glare Reducing) Glass.

Direct glare is caused by light which reaches the eye directly from the source. This is most obvious when an operator faces uncontrolled daylight through a plant window. Frosted Aklo Industrial Glass is particularly recommended to correct this condition. Reflected glare occurs when bright images or reflected surfaces are caught on the eye retina. This is most dangerous in plant operation where the reflected surfaces may be in the proximity of moving parts or the surfaces may be moving

parts themselves. Naturally, the safety of the employee is in danger, operations are slower and movements less sure. The elimination of this factor alone bringing increased safety and faster operations, which tend to reduce costs, warrants the installation of Frosted (Glare Reducing) Aklo.

### AKLO RESISTS THERMAL SHOCK

Ordinary Figured or Wire Glass in windows and skylights does not become very hot even when exposed directly to the sun for a long period of time. This is because practically all of the sun's heat passes right through the glass.

Aklo is unique among Heat-Absorbing and Glare-Reducing Figured or Wire Glasses in its low expansion and extremely high heat absorption properties. Obviously, the more solar heat a figured or wire glass absorbs, the lower its co-efficient of expansion must be. For this reason, Aklo Industrial Glass is not to be compared to the performances of any other glass. Under actual field conditions and in the laboratory, where there has been an opportunity to observe internal stresses, quick temperature changes, and unequal heating of the glass, Aklo has proven singularly successful in resisting thermal shock.

Aklo Industrial Glass has a co-efficient of .0000040 per degree F. against a co-efficient of expansion of .0000050 for ordinary glass. In round figures, Aklo expansion is approximately 20% less than that of ordinary glass.



Flat (22) Glass

# LIBBEY • OWENS • FORD



# BLUE RIDGE AKLO FIGURED AND WIRE GLASS

## IN INDUSTRIAL BUILDINGS

**RIGHT:** Interior Kenmore, N. Y., plant of the Curtiss Aeroplane Division, Curtiss-Wright Corporation. Albert Kahn, Inc., architects. A. D. Palmer, Jr., Curtiss plant official, says — "Aklo Glass has been helpful to working conditions, in that it is truly a non-glare glass. This has been found especially true in the assembly building, where airplanes with shiny Alclad surfaces are being constructed. With normal glass and a bright sun condition, work on certain parts of the plane, where reflection was especially pronounced, would be impossible."



**BELOW:** To speed vital production of airplanes, 14,830 lights of Aklo Hammered Glass were used in the new plant of Cessna Aircraft at Wichita, Kans. The Architects were Overend and Boucher, and W. A. Armogost, of Wichita.



**LEFT:** Aklo Hammered is used on the sunny side of the Peter Cailler Koehler Swiss Chocolate Co., at Fulton, N. Y. Aklo used in plants like this greatly reduces spoilage by keeping solar heat out.

**RIGHT:** With large areas exposed to the sun, Aklo Hammered glass was used to reduce heat infiltration in the plant of the Hydraulic Press Mfg. Co., Mt. Gilead, Ohio.



**LEFT:** "Our use of Aklo in windows exposed to the sun has done much to improve employee efficiency and comfort . . . we have floods of perfectly diffused daylight now," says Mr. J. A. Klug, Pres., of Sweet Kleen Laundry, Buffalo.

**RIGHT:** You can imagine how bright and attractive working conditions are in this plant of the Precision Parts Corp., Holland, Mich. Stuchell & Buckheit, Architects and Engineers, Detroit.



**RIGHT:** The modern drafting room of the Engineering School of Rutgers University. Designed by the Engineering Department of the University which specified Frosted Aklo Hammered Wire Glass.



**LEFT:** Composing Rooms in newspapers need good light. This modern Composing Room in the plant of the Cincinnati Enquirer is made ideal by the evenly diffused light from the skylights of Aklo Hammered Wire Glass. It's important too, in this connection, that solar heat is kept out.

Flat (23) Glass

# QUALITY FLAT GLASS PRODUCTS



# THERMOLUX—"LIGHT CONDITIONING UNIT"

PROVIDES CONTROLLED LIGHT, INSULATION AND BEAUTY

## FOR INTERIOR GLAZING

Effective illumination of glass enclosed areas and their insulation against heat, cold and sound are frequently very important considerations in planning the utilitarian and decorative treatments of building interiors. Naturally, ease of installation and appearance of the finished job are always factors in the architect's choice of materials. Also, when partitions are formed by walls of glass, harmonious design may require the use of large panels appropriate to the dimensions of the wall. Saving floor space by building such insulating walls as thin as possible may present still another problem to the designer.

Our new "Light Conditioning Unit," Thermolux, successfully combines all of the properties necessary to meet these requirements. It consists of a layer of spun glass fibers pressed between two lights of flat glass which are sealed at the edges to form a highly obscure, single glazing unit. The tiny fibers of translucent glass, each about six ten-thousandths of an inch in diameter, break up light rays

into thousands of miniature rays, giving a soft, evenly diffused light over a wide area. Directional control of the diffused light is obtained by spinning the fibers into a symmetric pattern which appears diamond shaped. Imprisoned air in the myriads of honey-comb like cells thus formed gives Thermolux its remarkable insulating value. The following detailed information about this unusual glass will aid architects, engineers and designers in planning for its use.

### HOW TO SPECIFY THERMOLUX

Where Thermolux Glass is shown on plans or specified herein for glazing of interior openings, it shall be . . . . ., (insert kinds and thicknesses of glass desired in the units and thickness and color of mat) and each light shall bear a label showing Libbey-Owens-Ford Glass Company to be the manufacturer.



BELOW: An attractive 48-in. interior sign made of Thermolux attracts patrons to the Fife and Drum Tap Room of the Witherell Hotel, Plattsburg, N. Y. The letters, clef and stars are sandblasted and painted.



LEFT: To assure the best possible light for readers, Thermolux was specified by Architects Hahn & Hayes for the sub-ceiling of Toledo's new Public Library.



RIGHT: These beautiful panels of Thermolux are built against a mirrored wall and extend upward to a huge circular plate glass mirror built against the ceiling. S. Lawrence Klein, Architect for McGinnis Restaurant, New York.



Flat (24) Glass

LIBBEY • OWENS • FORD



### INSULATING PROPERTIES OF THERMOLUX

REDUCTION OF SOUND TRANSMISSION	MAT THICKNESS	TRANSMISSION LOSS (DECIBELS)
Single light of Plate Glass		
1/4 in. thickness .....		33.7
THERMOLUX — both lights		
Single Strength Glass ..... 1/16 in.		41.1
THERMOLUX — both lights		
Single Strength Glass ..... 1/8 in.		44.4

From report by P. H. Geiger, Research Physicist, Department of Engineering Research, University of Michigan, Ann Arbor, Michigan (project No. M423, August 1939).

(A sound of 80 decibels is half as loud as a sound of 89 decibels; a sound of 30 decibels is half as loud as a sound of 37 decibels.)

### INSULATION (HEAT TRANSFER)

	HEAT TRANSMISSION BTU/Hr./Sq.Ft./°F. 15 MI. PER HR. WIND
Single Glazing—Ordinary Glass ... 1.13 (from A.S.H.V.E.)	
THERMOLUX—both lights Double Strength Glass 1/16 in. mat .... .652*	
THERMOLUX—both lights Double Strength Glass 1/8 in. mat ..... .576*	

\*Pittsburgh Testing Laboratory report No. 211665, August 1, 1940.

### SOLAR HEAT REDUCTION

	PERCENT OF TOTAL SOLAR HEAT TRANSMISSION (NORMAL INCIDENCE)
Ordinary Glass 1/4 in. thickness.....84%	
*THERMOLUX—both lights Double Strength Glass 1/16 in. mat.....52% to 54%	
*THERMOLUX—both lights Double Strength Glass 1/8 in. mat.....28% to 34%	

\*From report by Physics Department, University of Michigan, August 1940.

**USES OF THERMOLUX:** Wherever privacy, quiet, controlled illumination or insulation is desired Thermolux is highly effective for interior glazing of partitions or walls of glass in residences, stores, offices, hospitals and factories. Used in ceilings beneath skylights, Thermolux floods the room with thoroughly diffused daylight while insulating against solar heat in summer and cold in winter. In show windows of stores it can be employed to form attractive portable partitions or screens, or in stationary partitions between the window and the salesroom.

**MAT COLORS AND THICKNESSES:** White, Amber, Blue, Green and Rosetone—1/16 inch and 1/8 inch.

**DIRECTION OF FIBERS:** Light passing through Thermolux is spread perpendicularly to the general direction of the fibers. Thus, in order to throw light toward the floor and ceiling, the fibers in Thermolux glazed in walls or partitions will run horizontally unless specified otherwise or when the decorative glass Flutex is used. (In the latter case, fibers should run opposite to the direction of the Flutex pattern.)

**GLASS AVAILABLE:** Because of diffusion characteristics of Thermolux it is designed primarily for fabrication with clear glass, although obscure glass such as Flutex with a smooth flat surface facing toward the mat may be used if desired.

**MAXIMUM SIZES:** Both lights S.S.B. — width plus length not over 60 in. (neither dimension over 40 in.)

Both lights D.S.B. or 1/8 in. glass — width plus length not over 110 in. (neither dimension over 60 in.)

Both lights 3/16, 7/32 or 1/4 in. glass — 72 in. wide x 108 in. long.

Blue Ridge Flutex Glass, particularly attractive in Thermolux units, is available up to 48 in. wide measured perpendicularly to direction of pattern. Therefore, units made with 1/8 in. Flutex are limited in size to 48 in. wide x 62 in. long, and units made with 7/32 in. Flutex to 48 in. wide x 108 in. long.

**EDGE CLEARANCE:** Deduct 1/8 in. from width and length of tight frame measurements up to 24 in. inclusive and 3/16 in. from each width and length greater than 24 in.

**INTERIOR GLAZING:** Special technique is not required. Thermolux can be installed in patented sash or with ordinary putty or stops in any frame sturdy enough and having sufficient depth or height of rabbet to hold a single light of equivalent thickness and size. Care should be taken to hide edge seal with face putty or behind frame rabbet in order to improve appearance and serviceability of the job.

**RABBET HEIGHT:** To insure full coverage of edge seal, rabbet of frame should not be under 1/2 in. high for glass up to 24 in. wide or long, and not under 5/8 in. for larger lights.

**RABBET DEPTH:** Rabbets must be deep enough to allow for back bedding and ample face puttying to hold unit securely in frame. Build up height of face putty line to cover edge seal, or if stops are used, they should be high enough to cover seal. (Total thickness of Thermolux equals mat plus both lights of glass).

Flat (25) Glass



# TUF-FLEX TEMPERED PLATE GLASS

● **TUF-FLEX** is a tempered plate glass made by a special process of reheating and cooling Polished Plate Glass. It is much stronger than plate glass of the same thickness and more resistant to impact and thermal shock.\* Tuf-Flex is ideally suited for glass shelving and fire-screens; for porthole glass in ships; for sterilizing ovens, oven doors and similar enclosures subject to extreme heat changes; for glazing doors of stores and public buildings and places of amusement; for kick-plates on doors; for show-case shelves in stores and in exhibition cases in museums; for use in modern fixtures; and as a practical substitute for wire glass in skylights and monitors when additional light is required. These are a few of the many practical new uses for Tuf-Flex constantly being discovered.

Tuf-Flex is furnished in clear or colored plate glass. Vitrolite Structural Glass can also be tempered into Tuf-Flex to give it extra strength and greater heat resistance. Tuf-Flex can be supplied silvered, ground or etched, but cannot be cut after it is tempered, consequently the exact sizes required must be specified. It is available in sizes not exceeding 48 x 48 in. and in thickness from  $\frac{1}{4}$  in. up, with the exception of Tuf-Flex made of colored plate glass which is produced in  $\frac{7}{32}$ -in. thickness only. Complete information on Tuf-Flex is available in booklet form.

\*While Tuf-Flex is not unbreakable, its tempering process limits its susceptibility to breakage. Chipping or puncturing exposed edges or surfaces causes the glass to disintegrate into small crystals which have a tendency to fly apart.



A Tuf-Flex Glass balcony rail provides ample protection and at the same time does not obstruct the view. Kartsen's Cafeteria, Detroit, Mich. Robert J. West, Architect, Detroit.



ABOVE: Tuf-Flex does not break when molten lead is poured on it, even though the  $\frac{1}{4}$ -in. light rests on a cake of ice. Regular plate glass, similarly tested, shattered instantly.



AT THE LEFT: A 12 x 48-in. light of Tuf-Flex twists through an angle of 20 degrees without failure. Regular plate glass of the same size and thickness failed at 7 degrees.



Flat (26) Glass

LIBBEY • OWENS • FORD



# TUF-FLEX GLASS DOORS

Glass Doors . . . have a strong appeal to anyone looking for something new in a distinctive, startling note in design and combine a practical value of store prestige, an advertising medium and customer drawing power. For through these doors, entirely of glass, the store interior becomes, in effect, a show window inviting the customer to enter.



Why hide an attractive interior behind obscure doors? The owners of Oreck's Ladies Clothing Store in Duluth, Minn., want the passerby to see how comfortable and inviting the interior is.

**SIZES**— Tuf-flex Glass Doors are made of  $\frac{3}{4}$ " thick tempered glass only and are manufactured to exact finished size, furnished in any width up to 48" and in any height up to 108".

**TUF-FLEX DOOR FITTINGS**— The bronze fittings with which Tuf-flex Doors are equipped are cast on the tempered glass at the factory and cannot be changed or altered on the job. Tuf-flex Glass Doors cannot be drilled or cut or otherwise altered after leaving the factory. Tuf-flex Doors are furnished with locks and/or flush bolts and/or strike, cast on the glass at the factory.

**INSTALLATION** — All Tuf-flex Glass Doors are designed to receive standard pivot hinges and other builders' hardware (furnished by others). Glass Doors are installed like any pivot hinged door.

**FINISHES OF METAL FITTINGS**— All metal fittings as cast on Glass Doors are solid bronze and are furnished in the following finishes: Polished Bronze; Brushed Bronze; Polished Chrome Plating; Brushed Chrome Plating.



Shoppers have no trouble seeing in—the inside display becomes an extra display window because of this smart Tuf-Flex double door installation in the Parkview Drug Bldg., Kansas City, Mo.



Notice how much more light these attractive Tuf-flex doors admit into the entrance and hallway as compared to other types. There are fewer accidents—fewer bumped heads where Tuf-Flex Clear Vision is provided.



How much better than the old-fashioned door. This Tuf-Flex installation is in Rogers Jewelry, Columbus, Neb.



1941

Catalog

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Products

#### BRANCH OFFICES

Libbey-Owens-Ford Glass Company maintains Branch Offices in the following cities:

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Boston, Mass.  
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Cleveland, Ohio  
Dallas, Texas  
Denver, Colo.  
Detroit, Mich.  
Kansas City, Mo.  
Los Angeles, Calif.  
Milwaukee, Wis.

Minneapolis, Minn.  
New York, N. Y.  
Philadelphia, Pa.  
Richmond, Va.  
San Francisco, Calif.  
Seattle, Wash.  
Shreveport, La.  
St. Louis, Mo.  
Syracuse, N. Y.  
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See local telephone directory for address and phone.



**LIBBEY • OWENS • FORD**

# *Structural Glass Products*

**VITROLITE - VITROLUX  
GLASTONE**



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**LIBBEY • OWENS • FORD GLASS COMPANY**



## VITROLITE

● A wide range of Vitrolite colors — with new applications of this colorful structural glass — available in mechanically ground and polished, and fire polished finishes and the newly developed satin finish, have given this product a new functional place in modern construction and design. Add to this the fact that it is easily cleaned . . . impervious to odors and moisture . . . and you have the reason why so many architects and designers are constantly using it to give added beauty and attractiveness to their designs for storefronts, theaterfronts, wall covering for bathrooms in homes, apartment houses, hotels and other commercial buildings, and for corridors and lobbies. A color chart in the back of this catalog gives you a picture of the wide range of colors available.

## VITROLUX

● Vitrolux color fused Tempered Glass has created a new era in the design of signs; soffits for store entrances, luminous storefronts and for interior display panels. In the home, the theater, hotels and many other places, Vitrolux makes possible many new achievements in luminous ceilings and panels. By day Vitrolux appears colorfully opaque; by night when backed with illumination, Vitrolux becomes softly but vividly luminous, diffusing its illumination evenly. This feature gives Vitrolux a definite plus value of advertising, providing sales appeal — spotlighting and focusing the attention of all who pass by.

## GLASTONE

● Glastone, a pre-cast construction unit, offers the many advantages of Vitrolite and the additional advantages of solid masonry. Glastone utilizes Vitrolite as a permanent finish securely adhered to slabs of lightweight concrete. The Vitrolite facing is free of pressure or load from any direction — the concrete backing carrying the wall load and the design of the unit automatically providing for expansion and contraction. Glastone is used and installed like any other masonry unit. No special tools are required for installation. Any competent mason can erect it, just as he does limestone, granite, terra cotta or other similar building materials.



Structural (2) Glass

**LIBBEY • OWENS • FORD**



# VITROLITE

## *Colorful Structural Glass*

**WHAT VITROLITE IS** — Vitrolite is an opaque structural glass, fused at high temperature, and produced in sheets of various thicknesses and size. Its structure is dense and tough, with a tensile strength and resistance to wear greater than that of marble. The face of Vitrolite has a high luster and the back has a ribbed surface that may be effectively attached with mastic to any smooth, dry and permanently secure background.

**QUALITIES** — Vitrolite will not craze. Liquids in common use cannot penetrate it, and it will not absorb liquids or gases that give off unpleasant odors. It is highly resistant to staining and to burns from cigars or cigarettes. It is difficult to write or mark upon, and is easily cleaned by wiping with a damp cloth — or in extreme cases by the application of soap and water.

**STRENGTH** — Vitrolite has a minimum tensile strength of 937 lbs. per sq. in. and crushing strength of 31,658 lbs. per sq. in., which is about 40% greater than marble. It has a very high resistance to abrasion.

**WEIGHT** — Actual net weight, lbs. per sq. ft.: 11/32 in., 4.4 lbs.; 7/16 in., 5.6 lbs.; 3/4 in., 10.2 lbs.; 1 in., 14 lbs.; 1 1/4 in., 17.5 lbs.

**SURFACES** — Vitrolite is produced in three types of surfaces — fire-polished, mechanically polished and satin finish.

**THE FIRE-POLISHED SURFACE** is a natural result of the process of melting, rolling and annealing Vitrolite. The polish is high, hard, smooth, and dense, and therefore sanitary and highly resistant to staining and abrasion. Due to recently improved manufacturing methods, this surface has been highly perfected, being remarkably free from defects and the waviness common to fire-polished surfaces.

**MECHANICALLY POLISHED SURFACE** — Where mirror-like, reflective surfaces are desired, Vitrolite is supplied with a Mechanically Polished Surface, at slightly higher cost.

**SATIN FINISH** is a smooth semi-matte finish for purposes where a highly polished surface would not be suitable.

**VITROLITE COLORS** — Vitrolite with Fire Polished Surface is available in White, Ivory, Jade, Gray, Princess Blue, Jade Agate, Orchid Agate, Walnut Agate, Emerald Agate, Royal Blue Agate. Also 1 in. and 1 1/4 in. Black. Vitrolite with Mechanically Polished Surface is available in all of the above colors and the additional colors of Black, Cadet Blue, Tropic Green, Red, Sun Tan and Yellow.

All Vitrolite colors except Black are available in Satin Finish.

Since colors are sometimes added or changed, latest color information will be furnished by the company or any authorized Vitrolite dealer.

**DECORATIVE PROCESSES** — Decorative effects, murals and letters may be secured in plain or colored sandblasted ornament or by inlays of thin colored opaque glass or mirrors. A very effective relief sign can be made by cementing Vitrolite letters to Vitrolite background. By protecting the solid surface with a stencil, a grille may be made by sandblasting through the Vitrolite. An irregular pattern effect of interesting reflective value, similar to frosting on glass, may be obtained through a process of glue chipping. By sandblasting over a resist, black Vitrolite may be given a surface resembling black granite. A crackle finish is attained by sandblasting over a resist that has separated in drying.

**THICKNESS** — White, Black, Gray, Jade and Ivory are produced in thicknesses of 11/32 in., 7/16 in., 3/4 in., 1 in. and 1 1/4 in. Red is

made in 11/32 in. and 7/16 in. Agate colors are produced in 11/32 in. thickness only. Other plain colors — Yellow, Sun Tan, Tropic Green, Princess Blue and Cadet Blue are made in 11/32 only.

**SIZES** — The sizes of slabs to be used in actual installation are dependent on the location, construction and the purpose for which they are used. For storefronts, limit size of slabs to 6 sq. ft. with 3 ft. as the maximum horizontal width and 4 ft. as maximum height. For wainscoting, ashlar pieces from 8 x 12 in. to 24 x 24 in. are commonly used. Within these limits they are furnished with finished edges at a somewhat lower price than if specially cut and finished to fractional or irregular sizes. Where conditions demand a larger size, it should be taken up with the L.O.F. Architectural Service Department. Pieces for special wainscoting generally should not exceed 3 x 4 ft. Slabs for toilet partitions may be had up to 5 ft. square.

**STRUCTURAL ORGANIZATIONS** — Franchised Vitrolite dealers, experienced and competent in the installation of Vitrolite are located in all principal cities. They may be called upon for additional information and estimates.

**USES** — Due to its decorative and sanitary values, its permanence, and ease of maintenance, Vitrolite has many uses in new construction and in modernizing. Among these are: Modernizing storefronts, facing exteriors of buildings, lobbies and corridors of hotels, office buildings and public buildings, wainscoting and partitions for corridors, washrooms, shower baths and toilets in public buildings, in homes as walls and wainscoting for bathrooms, kitchens, breakfast rooms, as well as work tables and splash backs, for walls, ceilings and wainscoting of laboratories, bakeries, dairies, in hospitals — for operating rooms, diet kitchens, laboratories and bathrooms, in barber shops, meat markets and other shops, for lunch counters, bars, soda fountains, table tops in restaurants, confectioneries and taverns.

**CONSTRUCTION METHODS** — Careful study of the details and specifications will indicate a considerable difference in construction methods for exterior and interior work.

**EXTERIOR CONSTRUCTION** — Because of the extremes of temperature and exposure in exterior work special precautions must be observed to safeguard the Vitrolite, which has a very slight degree of expansion, against the expansion of materials back of it or adjacent to it, such as metal, wood, concrete or masonry, which have a considerably higher degree of expansion. Vitrolite should never come in direct contact with these materials but there should always be a space for clearance between them, filled with joint cement, cork tape or caulking, depending on the location. The facing of bulkheads should contain a base section about six inches high so as to produce an extra horizontal joint for expansion. On exteriors the Vitrolite is attached to masonry or cement plaster walls with special mastic cement made for exterior use, supplemented by shelf angles. Horizontal joints are 1/16 in. wide and have adhesive cork tape set back from the face. Vertical joints are 1/32 in. wide and all joints are buttered with joint cement.

Outside edges and top of storefronts should be protected with metal trim.

**INTERIOR CONSTRUCTION** — On interiors Vitrolite is attached against plaster or other dry and permanently secure wall surface with a mastic cement made for interior use. It is set with 1/64 in. joints which are pointed with joint cement except in showers or bath tub recesses, where the joints should be solidly buttered with joint cement.



# STORE FRONTS AND

## GENERAL SPECIFICATIONS

**(A-1) WORK INCLUDED.** The Contractor for Structural Glass (afterwards referred to as this Contractor) shall furnish and set all of the Structural Glass required for the completion of the building (alterations) (work) as indicated on the drawings and as hereinafter specified. This Contractor shall consult the General Conditions, Form of Contract, and other documents bound herewith or on file at the office of the Architects for instructions pertaining to his work.

**(A-2) WORK NOT INCLUDED.** This Contractor shall not include the following items, which work will be done by other Contractors.

NOTE: List any items of which there may be doubt as belonging in the contract for Structural Glass.

**(A-3) MEASUREMENTS.** This Contractor shall take all measurements he may require, at the building, and shall be responsible for the proper working out of all details and dimensions and for the proper relation between the Structural Glass and the work of other contractors. He shall confer with all contractors whose work adjoins the Structural Glass to see that all details are in perfect agreement.

**(A-4) DISTRIBUTION.** The following schedule is submitted for this Contractor's guidance as to the locations, kind and extent of Structural Glass.

(a) This schedule is not necessarily complete in every detail and shall be used by this Contractor in conjunction with the drawings, this Contractor providing all exterior Structural Glass that may be indicated or called for:

NOTE: "Describe the location and various kinds of Structural Glass and details of thickness, color, special decorations, names and similar details."

(b) Unless otherwise indicated, the Structural Glass finish shall return into all recesses, window and door openings and shall be carried around all projections.

**(A-5) SEPARATE PROPOSALS.** This Contractor shall submit separate proposals as called for under the heading of "GENERAL WORK."

**(A-6) SAMPLES.** This Contractor shall submit duplicate samples of the various kinds of Structural Glass included in the contract to the Architect for his approval before executing any of the work and he shall submit additional samples if the first samples are not approved. All samples shall be properly labeled and all Structural Glass furnished shall be equal in every respect to the approved samples.

**(A-7) SHOP DRAWINGS.** This Contractor shall prepare and submit complete shop drawings of all Structural Glass to the Architect for his examination before executing any of the work, as further described under "GENERAL CONDITIONS."

The shop drawings shall indicate the jointing, the various thicknesses of material, color, finish and all other salient details.

**(A-8) COLOR AND FINISH.** All exterior Structural Glass shall be of colors indicated (or to be selected) and the surfaces shall be fire polished or mechanically ground and polished or satin finish, with sandblasted and special decorations or textures, all as indicated on the drawings and details and as described under side heading of "DISTRIBUTION." The back of all Structural Glass shall have ribbed surface.

**(A-9) MATERIALS.** All Structural Glass shall be opaque and homogeneous, fused and rolled into slab form and thoroughly annealed.

(a) All Structural Glass shall be "Vitrolite" as manufactured by the Libbey-Owens-Ford Glass Company.

(b) All cement for setting Structural Glass shall be an asphaltic cement especially made for external use and shall be approved both by the Architects and the manufacturer of the glass. All joint cement shall be of a make as approved by the manufacturer of the Structural Glass and the Architects.

**(A-10) FABRICATION.** This Contractor shall follow the approved details and shop drawings in cutting, fitting and setting all Structural Glass.

(a) All Structural Glass shall be fabricated to exact sizes and shall be plumb, true and square.

(b) Where indicated Structural Glass shall be cut to special shapes and bent to indicated radius or curve. All abutting edges shall be ground square and the angles at the intersection of the face and edges shall be slightly beveled or rounded. At salient angles all exposed edges shall be polished and shall be square, rounded or beveled. Concealed edges (not abutting glass) may be clean cut.

**(A-11) INSTALLATION.** All Structural Glass shall be set in the best possible manner. Only experienced and competent setters shall be employed. Surfaces shall be plumb and true. Horizontal joints shall be in perfect alignment. Where continuous vertical joints occur they shall be plumb and form perfect intersections with the horizontal joints.

(a) All surfaces to which Structural Glass is to be applied shall be dry, rigid and secure and shall be masonry or cement plaster on metal lath.

(b) Wood backing will not be permitted.

(c) This Contractor shall examine the surfaces left by other contractors and shall report all defects in wall surfaces to the architects.

Structural (4) Glass



# LIBBEY · OWENS · FORD



# BUILDING EXTERIORS

## General Specifications — Continued

(d) The commencement of his work shall be an indication of the acceptance of the surfaces by him.

(e) All exterior surfaces over which Structural Glass is to be applied shall receive a bond coat of approved material applied by this Contractor. This bond coat shall be of a type that will act as a water-proofing material and that will provide an affinity between the wall surface and the cement.

NOTE: This bond coat is not required on glazed vitrified or other similar impervious and non-absorbent surfaces.

(f) The surfaces of the wall and the back of the Structural Glass shall be perfectly dry.

(g) The Structural Glass shall be cemented by an approved mastic to the wall surfaces, and the space between the wall and the glass shall not exceed approximately  $\frac{3}{8}$  in. with a variance of  $\frac{1}{8}$  in. narrower or wider.

(h) Where Structural Glass starts at the sidewalk level it shall be supported on shelf angles (as described in paragraph (n) below) set from  $\frac{1}{4}$  in. to  $\frac{3}{8}$  in. above the sidewalk line, the space between the Vitrolite and the sidewalk to be neatly filled and pointed with caulking colored to match the Vitrolite as nearly as possible.

(i) At the base, top and sides of the Structural Glass, and around all openings the setting cement shall be applied solidly for a width of 3 in. from the edge of the glass. Elsewhere the cement shall be set in daubs 2 to 3 in. in diameter evenly distributed so that 50% of the total area of the glass shall be covered with cement when set.

(j) Each horizontal joint shall have a strip of adhesive cork tape  $\frac{1}{16}$  in. thick set back about  $\frac{1}{8}$  in. from the face. This tape shall be buttered over and the open joint in front filled with joint cement.

(k) Each vertical joint shall be at least  $\frac{1}{32}$  in. in thickness and shall be thoroughly buttered with joint cement and in no case shall pieces of Structural Glass in either vertical or horizontal joints abut directly against each other.

(l) Where the edges of Structural Glass finish against metal or against adjoining property a joint of  $\frac{1}{16}$  to  $\frac{1}{8}$  in. shall be left and the joint pointed smooth and even with joint cement.

(m) The Structural Glass shall be supported on shelf angles set approximately 3 feet apart vertically and in such a manner that they will be concealed by the joint cement.

(n) These angles shall be No. 18 gauge (galvanized iron (brass) approximately 3 in. square and with a  $\frac{5}{8}$  in. leg to support the Structural Glass.

(o) They shall be spaced at approved intervals and shall be secured to the wall with expansion bolts, toggle bolts or other approved manner.

(p) The top edge of the upper course of Structural Glass shall be set under the masonry sill or projection and the joints shall be thoroughly filled with cement.

(q) Where no projection occurs, the top course of Structural Glass shall be covered with a member of (aluminum) (stainless steel) which shall be furnished and installed by this Contractor.

(r) This member shall be formed to provide a drip and shall be flashed into the wall in a manner to eliminate the possibility of water getting in behind the Structural Glass.

(s) Where the Structural Glass facing extends to the top of a wall where no coping is used, this Contractor shall furnish and install an (aluminum) (stainless steel) coping well anchored to the wall and forming an approved drip.

(t) Exposed edges of Structural Glass at the extreme sides of the installation shall be covered by an (aluminum) (stainless steel) molding. This molding shall be furnished and installed by this Contractor in a manner to cover the cement joint and to eliminate the possibility of moisture getting behind the Structural Glass.

(u) Where ceiling and soffit slabs occur see (k) and (l) under B-11 — interiors.

(v) Where Structural Glass is indicated above limit and height permitted for setting by the methods described above the mastic cement shall be supplemented by the use of mechanical fastenings, to be approved by the Architect and in conformance with the requirements of the local building ordinance.

**(A-12) CUTTING, DRILLING AND FITTING.** This Contractor shall do all cutting, drilling and fitting of Structural Glass required for its proper installation and as required by other contractors to properly complete their work.

**(A-13) SCAFFOLDING.** This Contractor shall furnish, maintain and move as required all scaffolding he may require for the installation of Structural Glass.

All scaffolding shall be constructed and maintained in strict accordance with Federal and State Laws and City Ordinance requirements.

**(A-14) PROTECTION, CLEANING AND POINTING.** This Contractor shall provide all items of protection necessary to prevent damage to the Structural Glass at all times during the progress of the work. At completion he shall carefully point up all joints as required, shall clean the glass and leave all surfaces in perfect condition.

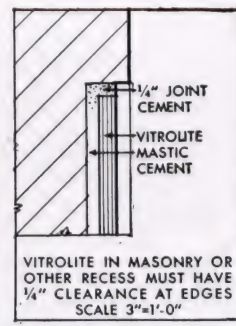
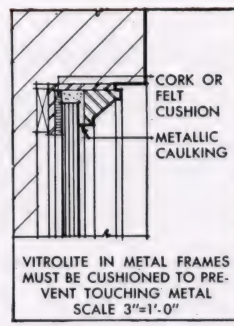
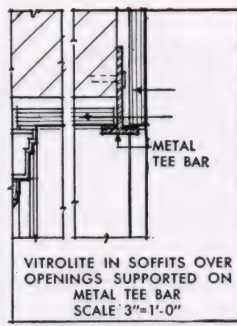
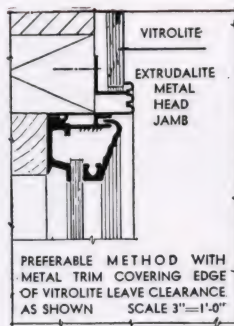
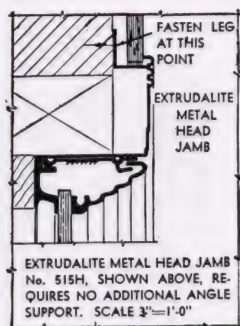
**(A-15) GUARANTEE.** This Contractor shall guarantee the entire installation against all defects of workmanship and material, including crazing, absorption of foreign matter, parting from wall, loosening or breaking except from the effects of external force or excessive heat, for a period of eighteen (18) months after the completion of the contract, as evidenced by the issuance of the final certificate, and he shall promptly repair at his own expense any defects that may arise within that period upon written notice from the Owner or Architects.



Structural (5) Glass

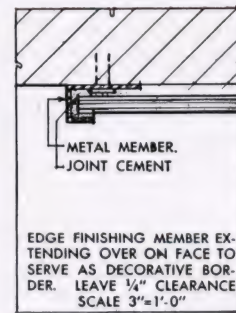
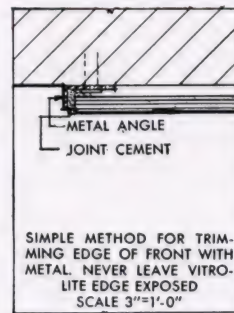
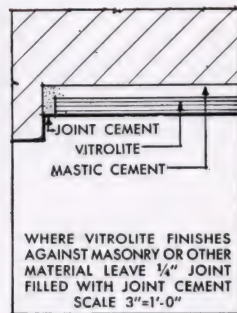
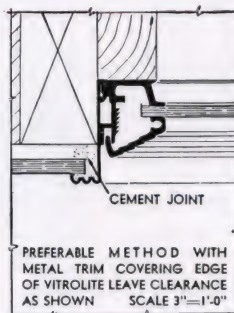
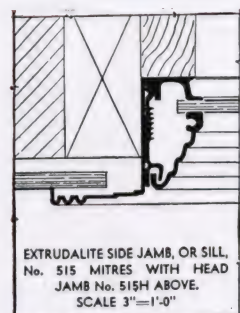
# QUALITY GLASS PRODUCTS





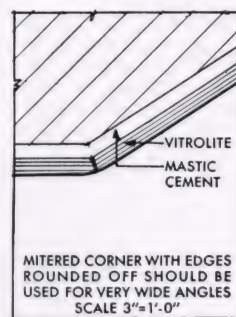
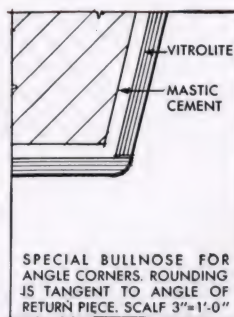
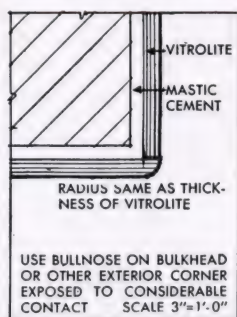
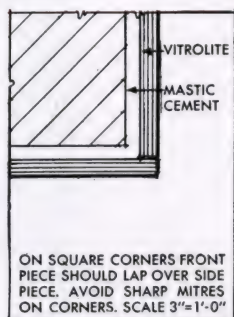
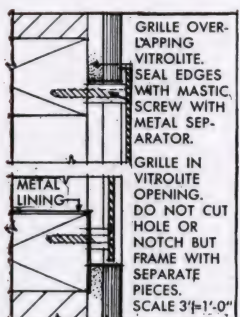
SECTIONS THRU HEAD OF SHOW WINDOWS

SECTIONS THRU SPANDRELS



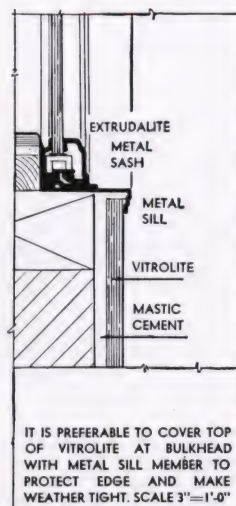
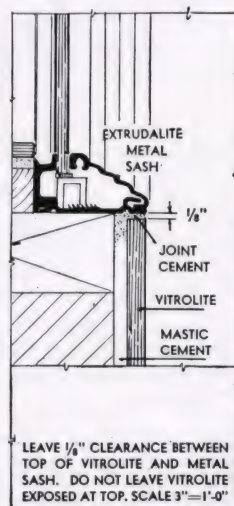
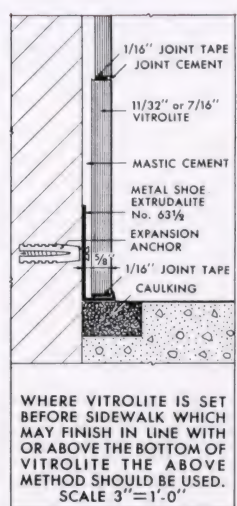
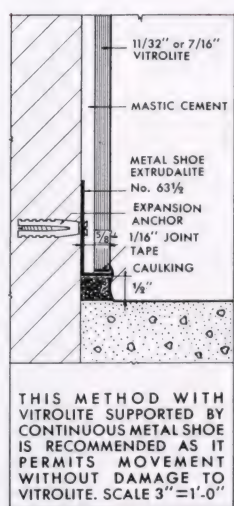
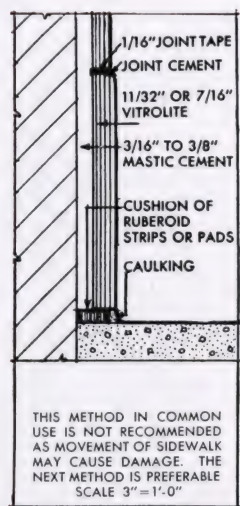
SIDE JAMB DETAILS

PLANS THRU EDGES OF STORE FRONT



GRILLE DETAILS

PLANS THRU VITROLITE AT CORNERS



SECTIONS THRU BULKHEAD BASE

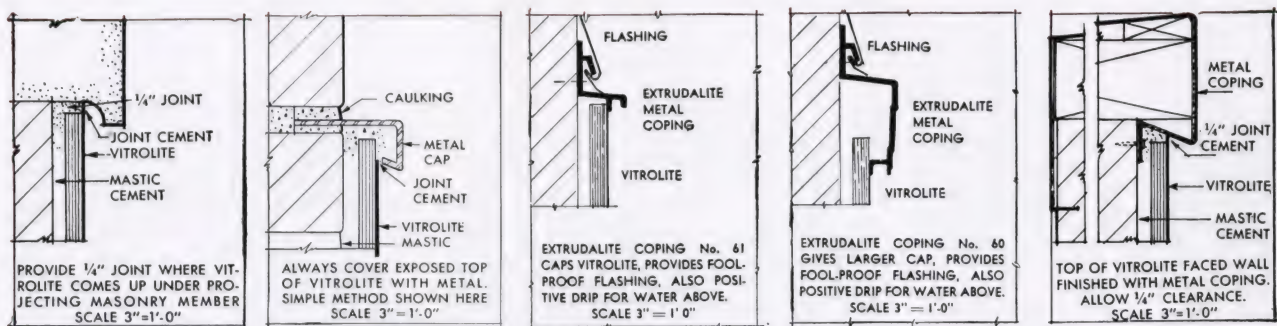
SILLS OF SHOW WINDOWS



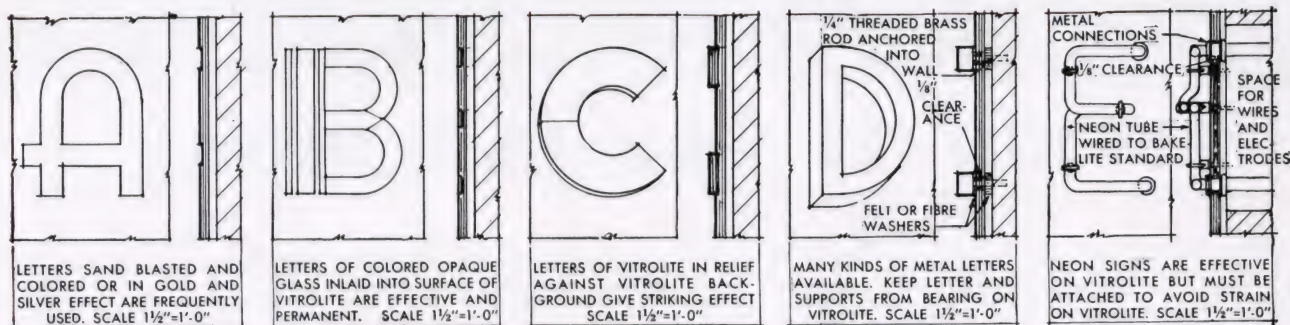
Structural (6) Glass

LIBBEY · OWENS · FORD

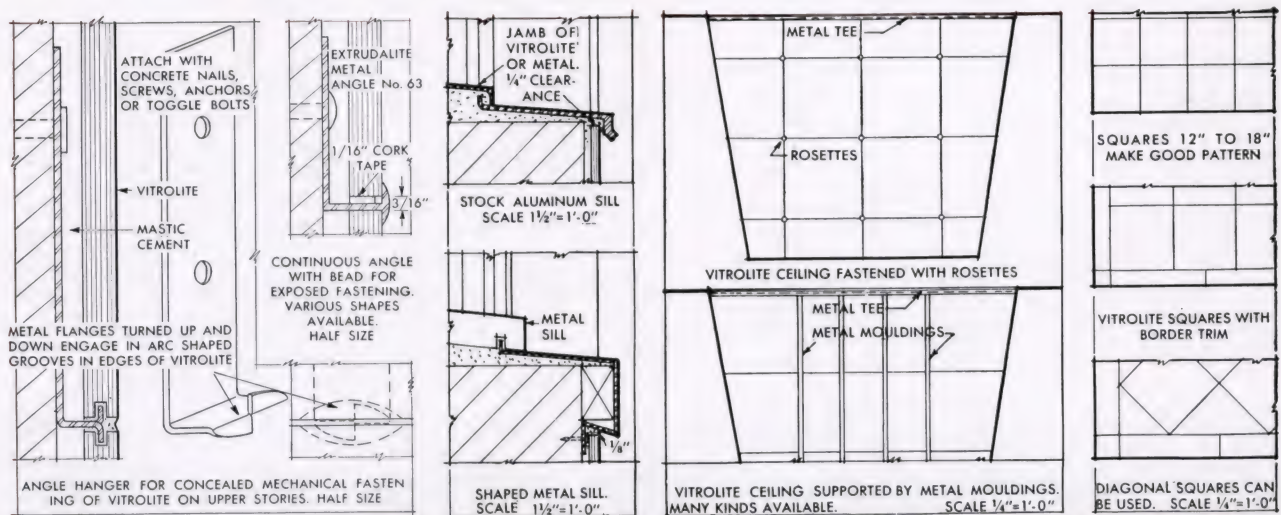




### SECTIONS THRU FINISH AT TOP OF VITROLITE FACING



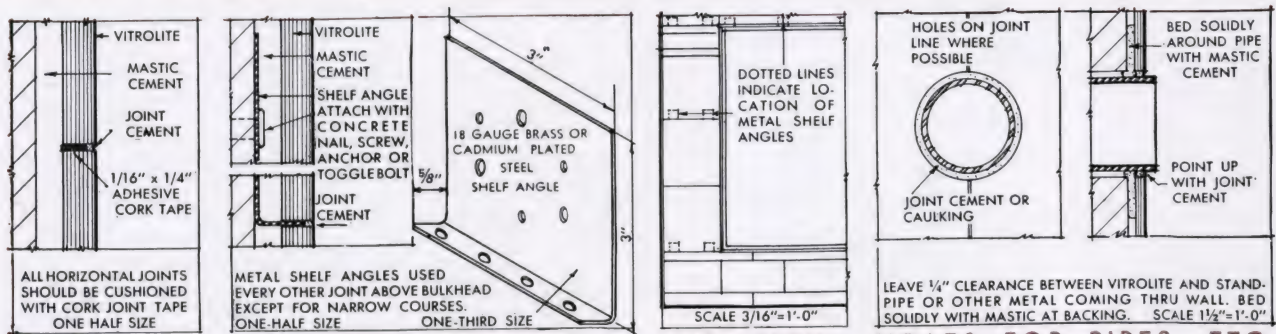
### TYPES OF LETTERS USED ON VITROLITE FRONTS



### HANGER FOR FASTENING WINDOW SILLS

### CEILINGS OVER ENTRY

### Show Wdw. Floors



### JOINT TAPE

### SHELF ANGLE

### PIER ELEV.

### HOLES FOR PIPES, ETC.





## VITROLITE FOR INTERIORS

● Vitrolite Structural Glass has a definite place in today's interior design and architecture that places so much emphasis on functional and decorative values. And because Vitrolite is glass, it is inherently clean — it will not absorb odors, moisture or grease.

Vitrolite is ideally suited for the modernization of existing interiors as well as for new construction. It lends an evidence of quality and contributes to the owner's permanent satisfaction.

A sparkling, colorful interior of Vitrolite meets the most exacting requirements of cleanliness and sanitation. Its fine reflective surface will not fade or deteriorate from the effects of moisture or age. Washing is all that is ever required to maintain its original beauty.

Vitrolite is not only a lasting wall facing material, but because of its beauty of surface and color it is recognized

as having a distinctly modern appearance and possessing decorative qualities of a high order.

The following pages contain construction details, specifications and information as to proper installation methods.

Vitrolite may be combined effectively with metal trim and accessories.

Typical building lobby installations of Vitrolite are illustrated in this catalog. Where the designer wishes to place metal division strips between Vitrolite panels, specially designed Extrudalite members are available. (See pages 14 to 16 incl. for Vitrolux data and separate Sweet's Catalog for Extrudalite data.) These products provide the architect with fascinating and versatile resources for effective design and color that will undoubtedly exert a strong influence upon the character of interior architecture.



Structural (8) Glass



# LIBBEY · OWENS · FORD



# INTERIORS

**(B-1) WORK INCLUDED.** Same as A-1 Storefronts.

**(B-2) WORK NOT INCLUDED.** Same as A-2 Storefronts.

**(B-3) MEASUREMENTS.** Same as A-3 Storefronts.

**(B-4) DISTRIBUTION.** Same as A-4 Storefronts.

(a) This schedule is not necessarily complete in every detail and shall be used by this Contractor in conjunction with the drawings, this Contractor providing all interior Structural Glass that may be indicated or called for.

"Describe the location and various kinds of the Structural Glass with details of thickness, color, special decorations and similar details."

(b) Unless otherwise indicated, all Structural Glass finish shall extend to the wood members at the door jambs, and shall return in window openings to the frames including the stools.

"NOTE: Structural Glass should not finish directly against door jamb. It is preferable to use a small molding between jamb and edge of Structural Glass."

(c) In conjunction with all Structural Glass base this Contractor shall form plinths as indicated on the drawings under door casings, pilasters and all other special treatment in the spaces in which the base occurs.

(d) Where base, wainscot and other Structural Glass work is specified in a space it shall be taken to include the entire space, including all walls, partitions, columns, returns in openings, alcoves and recesses, together with all pilasters and other features required to carry out designs in the various locations.

**(B-5) SEPARATE PROPOSALS.** Same as A-5 Storefronts.

**(B-6) SAMPLES.** Same as A-6 Storefronts.

**(B-7) SHOP DRAWINGS.** Same as A-7 Storefronts.

**(B-8) COLOR AND FINISH.** Same as A-8 Storefronts.

**(B-9) MATERIALS.** Same as A-9 Storefronts.

(a) Same as (a)—A-9 Storefronts.

(b) All mastic for attaching Structural Glass and all joint cement shall be of a make as approved by the manufacturer of the Structural Glass and the architect.

**(B-10) FABRICATION.** Same as A-10 (a & b) Storefronts.

**(B-11) INSTALLATION.** Same as A-11 Storefronts.

(a) All surfaces to which Structural Glass is to be applied shall have a brown coat, or finish coat of plaster which shall be plumb, true and smooth, and shall be executed by the Plastering Contractor.

"NOTE: While a plaster base is recommended, Structural Glass for interior work may be cemented against any surface that is dry, rigid, substantial and permanently secure."

(b) Same as (c) A-11 Storefronts.

(c) Same as (d) A-11 Storefronts.

(d) All interior surfaces over which Structural Glass is to be applied shall receive a bond coat of approved material by this Contractor.

(e) The surfaces of the wall and the back of the Structural Glass shall be perfectly dry.

(f) The Structural Glass shall be set in place with cement and all joints shall be 1/64 in. joints, which shall be neatly pointed with joint cement colored to match the Structural Glass (or color of which is to be selected).

(g) Where Structural Glass occurs as wainscot above tubs in bathrooms and on rear and sidewalls of shower partitions, the bottom 2 in. shall be set solidly in mastic. Elsewhere the mastic shall be set in daubs 2 in. to 3 in. in diameter evenly distributed so that 50% of the total area of the glass shall be covered with mastic. All joints of wainscot on walls of showers, enclosures, around tubs, and similar locations shall be buttered with joint cement.

(h) In general, the Structural Glass for base, cap and trim shall be 7/16 in. (11/32 in.) thick and shall be of the dimensions indicated. The relation of the cap to the plaster surface above shall be as detailed.

(i) Ashlar material shall be 11/32 in. in thickness with an approximate minimum dimension of 8 in. x 12 in. and an approximate maximum dimension of 24 in. x 24 in.

(j) Window stools shall be 3/4 in. in thickness.

(k) Ceiling and soffit slabs shall be 11/32 in. in thickness and shall be secured to 1 in. x 4 in. wood furring strips set in place by this Contractor.

(l) The ceiling slabs shall be set in mastic on the furring strips and held in place by rosettes of material and design to be selected and approved by this Architect, set over felt washers and secured with brass wood screws.

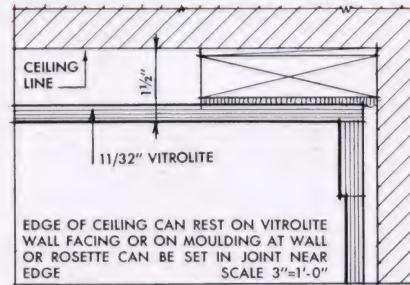
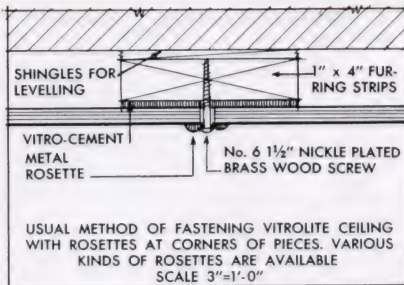
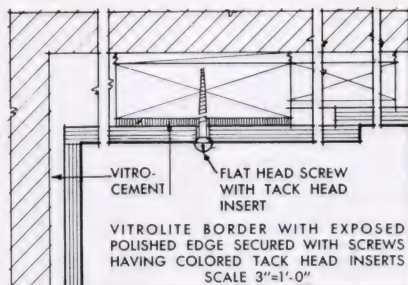
(m) This Contractor shall furnish and set the following bathroom accessories: (Give list and description of accessories desired). They shall be located as indicated on the drawings or as directed by the architects.

**(B-12) CUTTING, DRILLING AND FITTING.**  
Same as A-12 Storefronts.

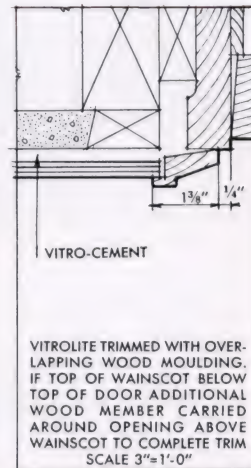
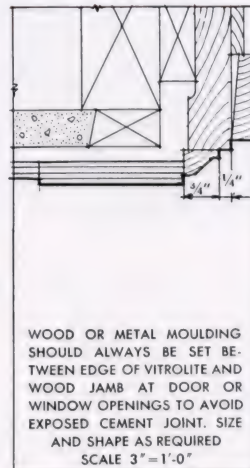
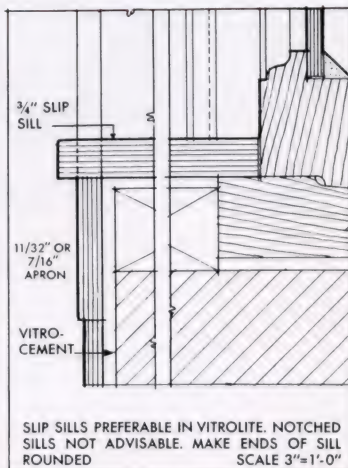
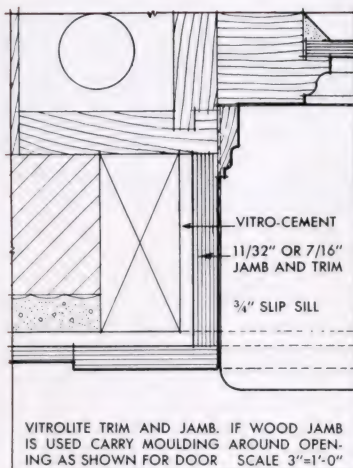
**(B-13) PROTECTION, CLEANING AND POINTING.** Same as A-13 Storefronts.

**(B-14) GUARANTEE.** Same as A-14 Storefronts.



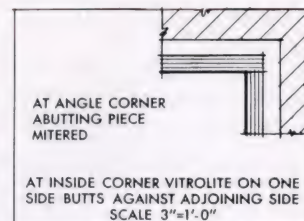
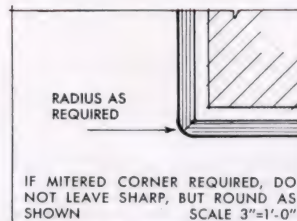
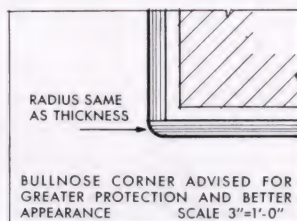
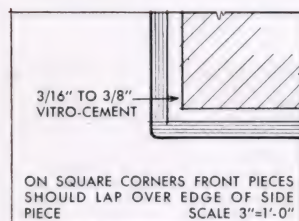


## METHODS OF VITROLITE CEILING CONSTRUCTION

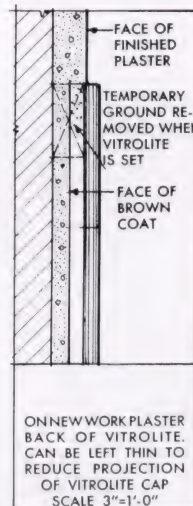
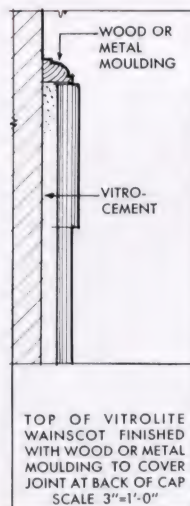
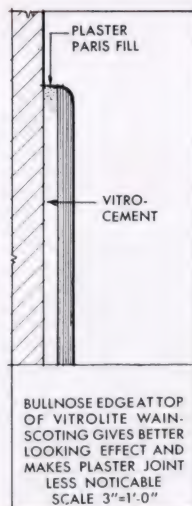
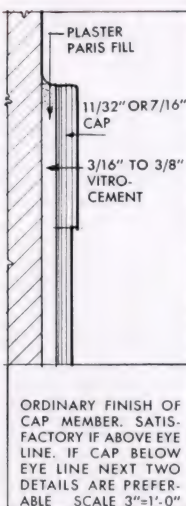
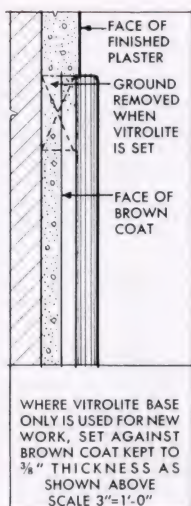
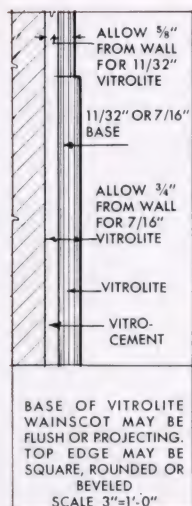


## VITROLITE TRIM FOR WINDOWS

## VITROLITE DOOR TRIM



## DETAILS OF CORNERS FOR VITROLITE INTERIORS



## SECTIONS OF BASES

## SECTIONS OF VITROLITE CAPS



Structural (10) Glass

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# VITROLITE AND VITROLUX

## IN THE MODERN BATHROOM

**GEMS** of beauty and color and models of convenience are today's smartly attired bathrooms. Here the Architect can achieve the latest in design — in color arrangement and in

fittings. And here, above all other materials, Vitrolite — colorful structural glass, offers unlimited scope for creative minds.

In these pages are illustrated several bathrooms modern in every detail of design, color and equipment, in which the reflective and colorful surface of Vitrolite is an essential factor. These Vitrolite rooms exemplify the new trends in design and are available at reasonable cost for the new home or the old one that is being modernized, whether of palatial proportions or of the low cost variety. Vitrolite can be installed over any substantial surface. It is durable — immune to steam — humidity — and the changing atmosphere in kitchen and bathroom. Its glass-hard surface does not absorb substances which cause odors — a moist cloth, or in extreme cases plain soap and water, will keep it immaculate and beautiful for years and years.



● An excellent use of Vitrolite in low and medium priced homes — a wainscoting around the tub of colorful Vitrolite.

● An all-Glass Bathroom. The walls are Vitrolite from floor to ceiling. The ceiling has concealed lighting behind an expanse of light-diffusing Vitrolux Tempered Glass.



● An ultra-modern shower stall in which two colors of Vitrolite are combined to give a very pleasing effect.

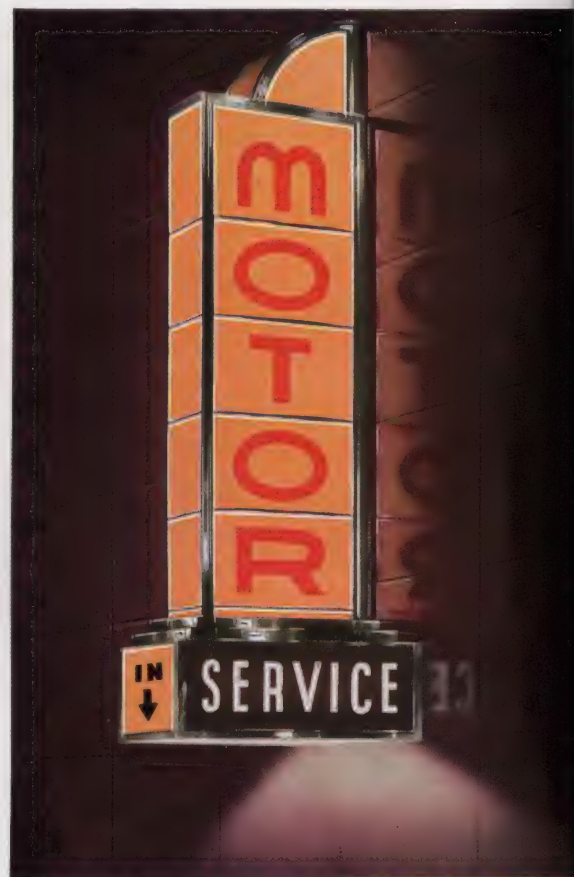




# VITROLITE AND VITROLUX IN COMMERCIAL BUILDINGS

Profit is the chief reason for any store's existence. Obviously the more people entering the store, the greater the profit. By spending only a small part of his yearly stock investment, the progressive merchant can have an up-to-date storefront that will bring the public into his store and extra profits to his till. The buying public is drawn to storefronts alive with stimulating light and color — color

that vibrates fresh and clean by day and is rich and luminous by night. With the stamp of public approval come profits to the progressive merchant. And every new buyer, attracted by the gleaming modern beauty of an up-to-date storefront, helps to widen the merchant's opportunities for securing the pleasant things in life that extra profits bring within his reach.



**ABOVE** — Luminous signs that are strikingly beautiful can be created with translucent Vitrolux. Lettering and color are an integral part of the glass.

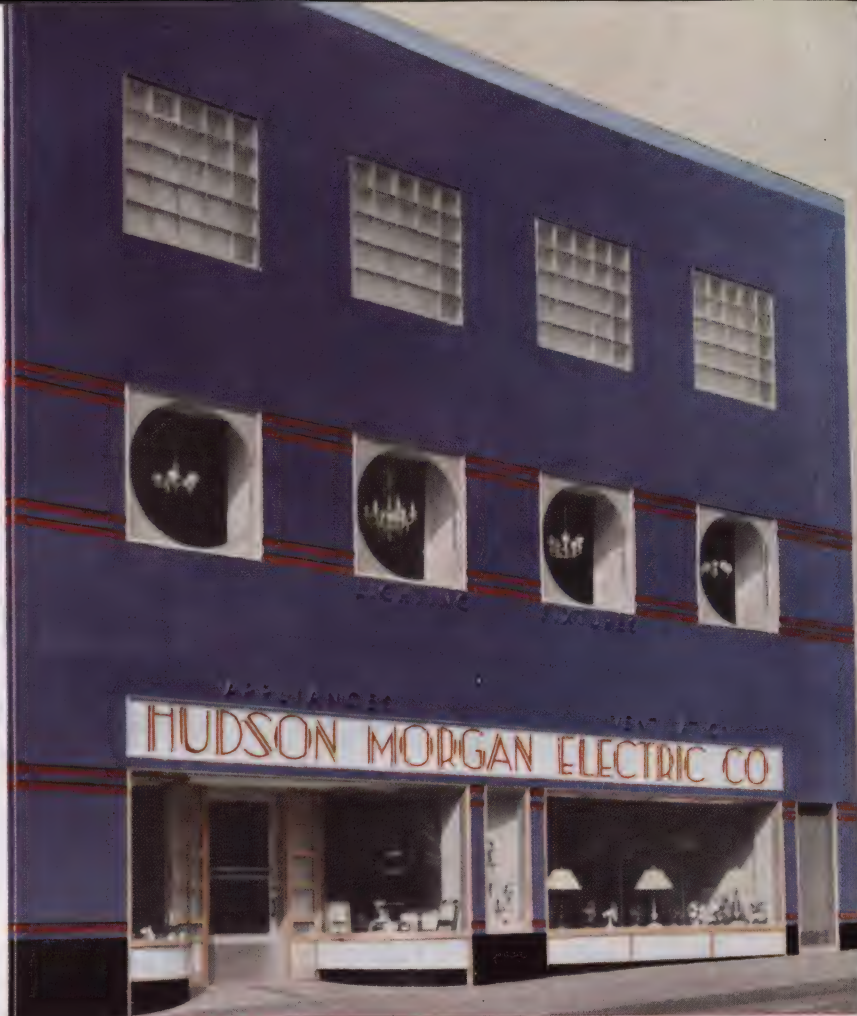
**LEFT** — The Biltmore Tap Room, 69 E. Madison Ave., Chicago, designed and erected by Palmer Personal Service. The highly luminous effect of translucent Vitrolux is clearly illustrated — offering a brilliant welcome to all who pass.

**RIGHT** — The Baron Stiegel Room of the Brunswick Hotel, Lancaster, Pa. Translucent Vitrolux installed in Extrudalite Storefront Metal over bulkheads of bent red Vitrolite. C. T. Macheras, Designer.





The new front of the Hudson-Morgan Electric Company, of Lynchburg, Va. Mr. W. H. Rorabaugh of Hudson-Morgan says: "I believe that the before and after pictures will certainly be more graphic than anything I could put in words. Entirely apart from our own satisfaction, I would like to point out that every comment from the public has been most flattering."





# VITROLITE COLOR CHART



WHITE



PRINCESS BLUE



GRAY



IVORY



ORCHID AGATE



ROYAL BLUE AGATE



YELLOW



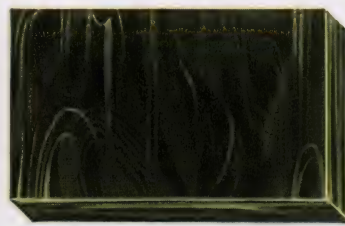
JADE AGATE



SUN TAN



WALNUT AGATE



EMERALD AGATE



JADE



CADET BLUE



BLACK



TROPIC GREEN



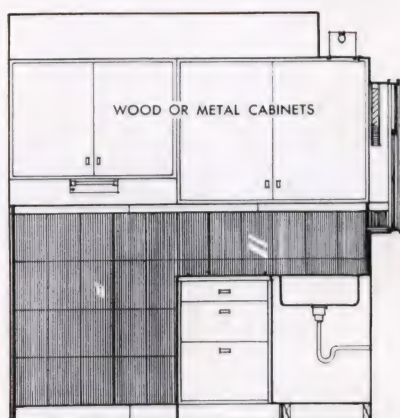
RED

## GLASTONE

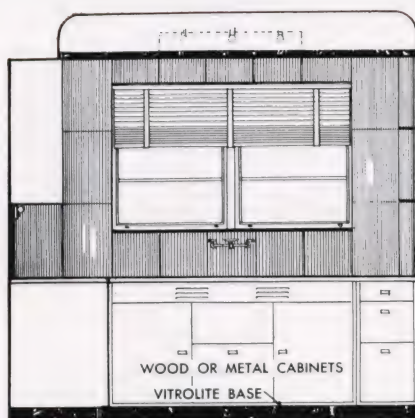
THE COLORFUL LOAD BEARING MASONRY UNIT



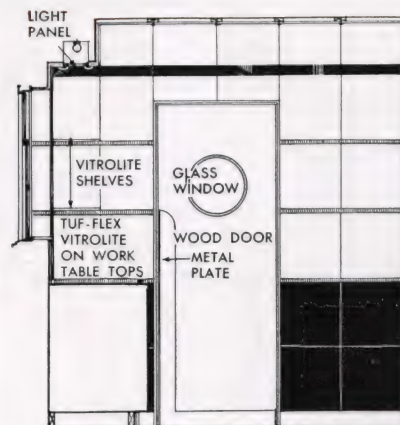




VITROLITE WAINSCOT IN ECONOMICAL STOCK SIZES. CAPS OF 2" OR 3" ASHLAR OF 8" x 12" OR 8" x 16" BASE OF 4" OR 6". SCALE 1/4"=1'-0"

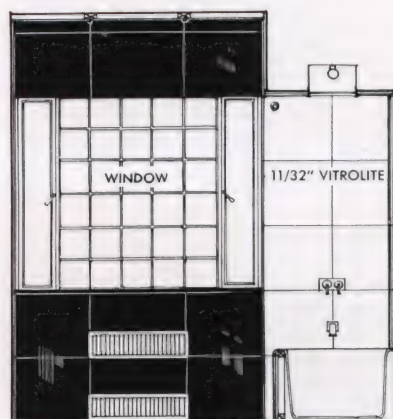


VITROLITE ARRANGEMENT TO FIT WALL CONDITIONS. PIECES OF EVEN INCHES UP TO 24" LOWER IN PRICE THAN FRACTIONAL SIZES. SCALE 1/4"=1'-0"

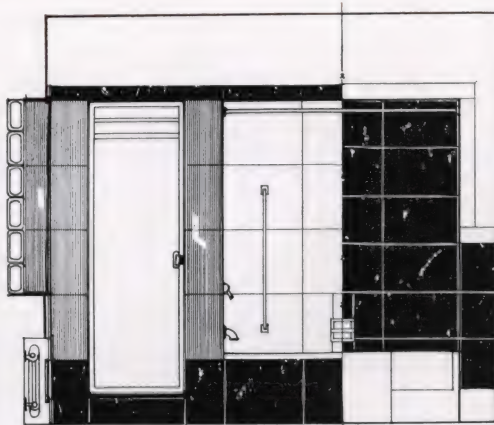


VITROLITE IN VARIETY OF SHAPES CAN BE USED IN INTERESTING COLOR SCHEMES ON WALLS AND CEILING. SCALE 1/4"=1'-0"

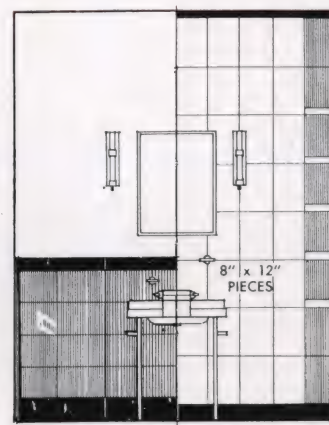
## VITROLITE WAINSCOTING AND WALLS IN KITCHENS



BATHROOM WALLS AND CEILING SCALE 1/4"=1'-0"

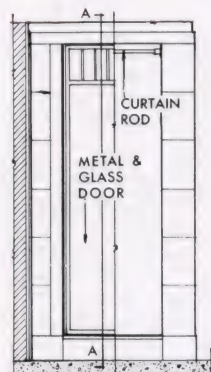


VITROLITE SCHEMES, SHOWER AND TUB RECESS SCALE 1/4"=1'-0"

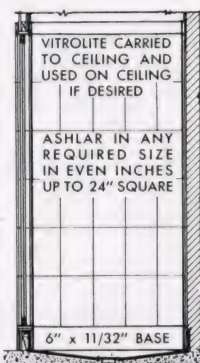


WAINSCOT & WALL IN STOCK SIZES

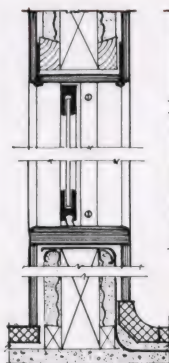
## VITROLITE WALL TREATMENTS IN BATHROOMS



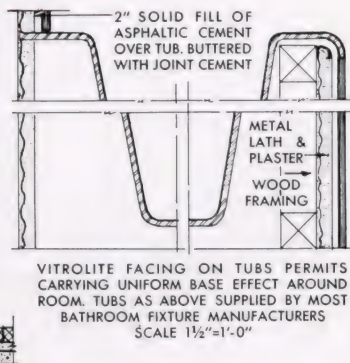
ELEVATION SCALE 1/4"=1'-0"



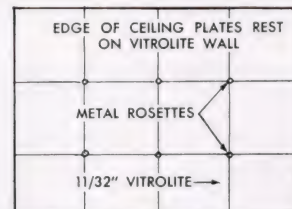
SECTION



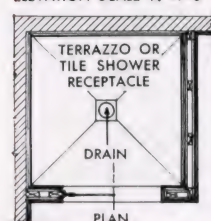
SECTION A-A



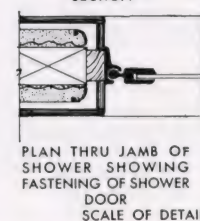
SCALE 1 1/2"=1'-0"



VITROLITE CEILINGS ARE ATTRACTIVE AND EASILY KEPT CLEAN. USUALLY IN SQUARES IN EVEN INCHES UP TO 24" SCALE 1/4"=1'-0"



PLAN



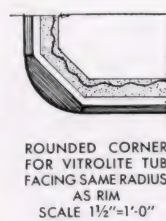
SCALE OF DETAILS 1 1/2"=1'-0"



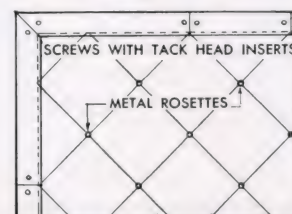
SCALE OF DETAILS 1 1/2"=1'-0"



DIAGONAL CORNER FOR VITROLITE TUB FACING SCALE 1 1/2"=1'-0"



ROUNDED CORNER FOR VITROLITE TUB FACING SAME RADIUS AS RIM SCALE 1 1/2"=1'-0"



SCALE 1/4"=1'-0"

### DETAILS OF VITROLITE SHOWER

### BATHTUB FACING

### CEILINGS



# TOILET PARTITIONS

**(C-1) WORK INCLUDED.** Same as A-1 Storefronts.

**(C-2) WORK NOT INCLUDED.** Same as A-2 Storefronts.

**(C-3) MEASUREMENTS.** Same as A-3 Storefronts.

**(C-4) DISTRIBUTION.** Same as A-4 Storefronts.

(a) Same as (a) B-4 Interiors. "Describes fully the type of toilet partition required."

**(C-5) SEPARATE PROPOSALS.** Same as A-5 Storefronts.

**(C-6) SAMPLES.** Same as A-6 Storefronts.

**(C-7) SHOP DRAWINGS.** Same as A-7 Storefronts.

**(C-8) COLOR AND FINISH.** Same as A-8 Storefronts.

**(C-9) MATERIALS.** Same as A-9 Storefronts.

(a) Same as (a) A-9 Storefronts.

(b) Same as (b) B-9 Interiors.

(c) Plaster of Paris shall be made from pure Gypsum Rock, which has been thoroughly calcined, fully ground and air separated.

(d) It shall be free from lumps and uniform in fineness and setting quality and shall be of an approved standard brand especially adapted for the setting of Structural Glass.

(e) Portland Cement shall be an approved brand of non-staining white Portland Cement.

**(C-10) FABRICATION.** Same as A-10 Storefronts.

**(C-11) INSTALLATION.** Same as A-11 Storefronts.

**TYPE OF TOILET PARTITION.** Type A toilets shall have partitions consisting of two 7/16 in. slabs cemented together and reinforced with two metal straps, which shall extend from the edges, which shall be bent and fitted to chromium plated metal sleeves (by this Contractor) to support the center stile and also bent and secured to the rear wall with plaster of Paris fill. (See Vitrolite construction details.)

The stiles shall be 1 1/4 in. thick and shall be let into the walls and floors 1 in. and set in plaster of Paris. The bottom of the stiles shall be wrapped around with a tight fitting strip of Ruberoid or similar material 3/4 in. thick and 1/2 in. in width which shall be left in place. The lower part of the stiles shall be wrapped with a protective layer of heavy building paper to be cut off at floor line at completion.

**TYPE B TOILET PARTITION.** Shall be similar to Type A except that partition shall not have metal straps but shall have metal tee-iron at the top anchored into rear wall and connected with chromium plated metal fitting at front stile. The stile being joined with square chromium plated metal head rails. The bottom of partitions shall rest on chromium plated metal standards at the back of stile and rear wall. (See Vitrolite construction details.)

**TYPE C TOILET PARTITION.** (Construction details not shown but will be sent upon request.)

The stiles shall consist of two 11/32 in. slabs of Vitrolite cemented to a composition core to a total thickness of 1 1/2 in. and trimmed with metal T bar moulding. The bottom corners of stile shall be rounded to 2 in. in radius. Stiles shall be suspended from overhead steel construction, concealed in a wall which extends down from the main ceiling 10 in. below the line of a lower ceiling suspended over the toilet at a height of 7 ft. 4 in. above the floor. The bottoms of the stiles shall be 11 in. above the floor and the tops where they join the wall shall be 6 ft. 6 in. above the floor.

Partitions shall be made of two 11/32 in. slabs of Vitrolite cemented to a composition core to a total thickness of 1 1/4 in. and having metal T bars at top and bottom of partition which shall be securely fastened to the rear wall with plaster of Paris and to the core of the stiles. The bottom of the partition shall be 1 ft. 2 in. above the floor and the top shall be 5 ft. 8 in. above the floor.

(This new construction is entirely clear of the floor, permitting easy cleaning. It is usually used in connection with water closets hung to the wall and kept clear of the floor. Since the fastenings of all hardware are concealed in the core of the stile and in the metal door construction and there are no exposed bolt heads or flanges on stile or door, this construction has a clean, unobstructed and modern appearance. Type C Toilet construction may also be had with a built-up, Vitrolite faced head rail incorporating a structural steel member which permits stalls to be suspended from the ceiling by means of rods without furring down the ceiling.)

This same type of built-up stile and partition may also be used for ordinary construction (not suspended) the stiles being anchored into the floor. This permits the same unobstructed surfaces and makes possible the use of any Vitrolite colors for stiles.)

**(C-12) HARDWARE.** This Contractor shall note that all hardware will be furnished and installed by the Contractor for "Hardware," or the General Contractor. If this Contractor is to install hardware the following will apply:

(a) This Contractor shall obtain templates as required and shall fit and secure all hardware necessary to complete the Structural Glass toilet partition.

(b) He shall install for each toilet stall door, two adjustable reverse spring hinges (or pivot type hinges) to hold door open when stall is unoccupied and which will be equal to (state manufacturer and number).

(c) One bolt equal to (state manufacturer and number).

(d) One strike equal to (state manufacturer and number).

(e) One approved double prong coat hook with rubber bumper (attached to door).

(f) He shall also install for each toilet stall an approved chromium plated cabinet type toilet paper holder (attached to the door).

(In cases where union regulations so require, coat hook and paper holder to be set by plumbing contractor.)

**(C-13) URINALS.** Where indicated the urinal wainscots shall be 11/32 in. ashlar and the divisions shall be 1 in. slabs polished on both sides and let in and cemented into grooves in the floor and walls.

(a) Where indicated, the backs of the urinals shall be constructed of one piece 3/4 in. thick slabs set above a terra cotta trough (by others) and in a manner to slope back at the top and fit below a ....in. cap.

(b) Where so indicated this Contractor shall construct a Structural Glass cover for a concealed flush pipe.

(c) This shall be built around a (steel) (wood) support (by others), as indicated on the details.

**(C-14) SHOWER STALLS.** Shower stalls shall be built around a metal lath and cement plaster core (by others) using 11/32 in. ashlar, 7/16 in. (11/32 in.) cap finished in accordance with the details. All joints shall be buttered with joint cement.

(a) This Contractor shall provide and install to all shower stalls.

(b) 1 1/2 in. diam. nickel metal rods. 26 oz. approved duck curtains 6 ft. 6 in. in length and fitted with nickel metal rings and grommets.

**(C-15) CUTTING, DRILLING AND FITTING.** Same as A-12 Storefronts.

**(C-16) PROTECTION, CLEANING AND POINTING.** Same as A-14 Storefronts.

**(C-17) GUARANTEE.** Same as A-15 Storefronts.

## SHORT FORM OF SPECIFICATION

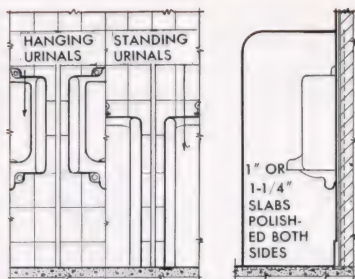
"All Structural Glass for..... shall be 'Vitrolite,' manufactured by the Libbey-Owens-Ford Glass Company, Toledo, Ohio, and shall be set in accordance with instructions issued by the above Company."



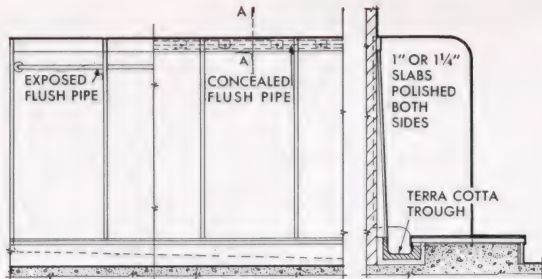
Structural (16) Glass

# LIBBEY • OWENS • FORD

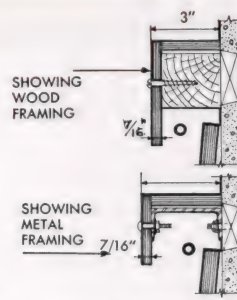




VITROLITE PARTITION SLABS AND WAINSCOTING.  
SCALE 1/4"=1'-0"

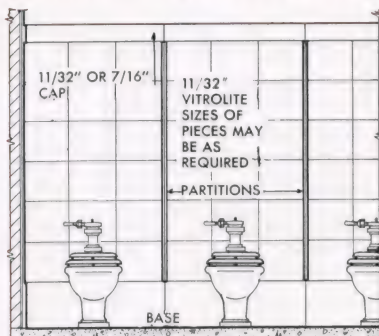


TYPE OF VITROLITE URINALS USED IN STADIUMS, FACTORIES AND INSTITUTIONS. • SCALE 1/4"=1'-0"

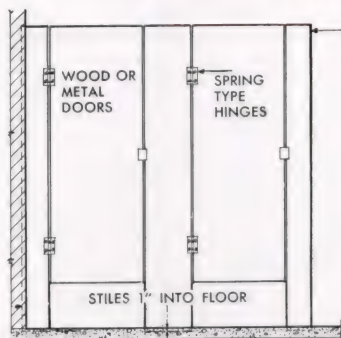


SECTIONS AT A-A  
SCALE 1 1/2"=1'-0"

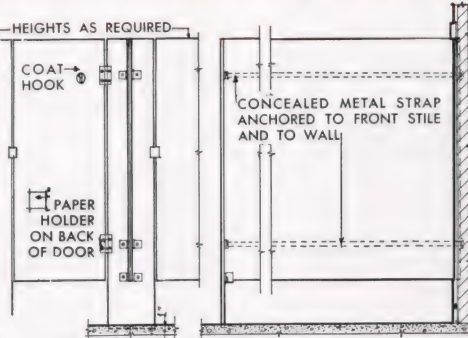
## URINAL PARTITIONS



VITROLITE WAINSCOTING AT BACK OF STALLS.  
SCALE 1/4"=1'-0"

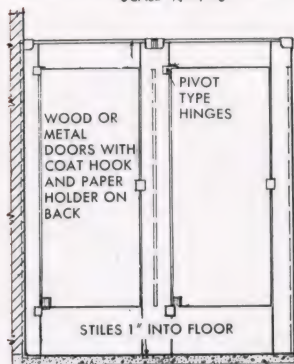


TYPE A USED IN THE FINEST OFFICE BUILDINGS.  
SCALE 1/4"=1'-0"

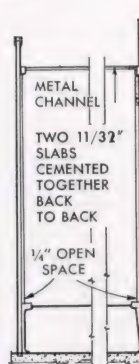


REAR OF STILE  
AND DOOR

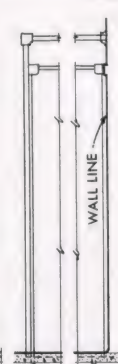
SECTION THROUGH TOILET STALL  
TYPE A. • SCALE 1/4"=1'-0"



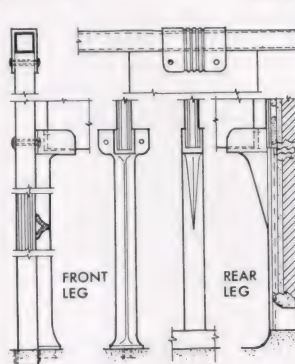
FRONT ELEVATION  
TYPE B VITROLITE TOILET STALL CONSTRUCTION WITH METAL HEADRAIL TO GIVE RIGIDITY AND WITH FLOATING PARTITION RELIEVED OF ALL STRAIN. SCALE 1/4"=1'-0"



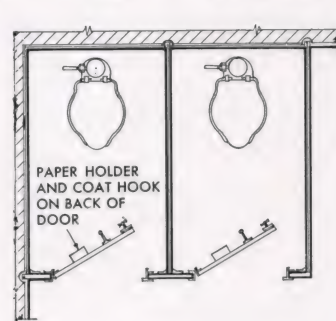
SECTION



END ELEVATION

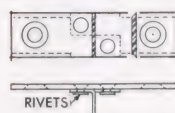


DETAILS OF NEW METAL HEADRAIL  
AND LEG SUPPORTS. TYPE B.  
SCALE 1"=1'-0"



FLOOR PLAN TYPE A  
WIDTH, DEPTH AND ARRANGEMENT TO SUIT  
REQUIREMENTS. • SCALE 1/4"=1'-0"

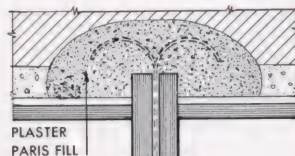
## DETAILS OF TYPE A VITROLITE TOILET COMPARTMENTS



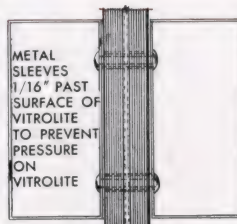
END OF IRON STRAP IN  
PARTITION SHOWING AT-  
TACHMENT TO STILE



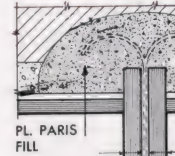
CHROMIUM PLATED  
METAL SLEEVE COVER-  
ING IRON PLATE



PLASTER  
PARIS FILL

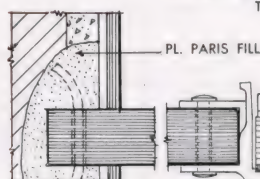


METAL SLEEVES  
1/16" PAST  
SURFACE OF  
VITROLITE  
TO PREVENT  
PRESSURE  
ON  
VITROLITE

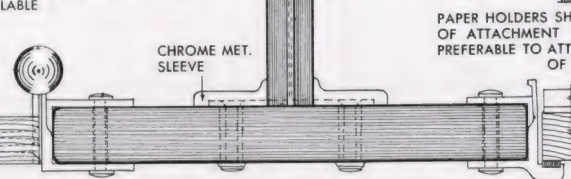


PL. PARIS  
FILL

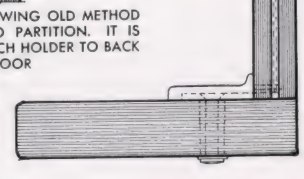
USUAL TYPE OF HARDWARE IS SHOWN. OTHER  
TYPES ARE AVAILABLE



PL. PARIS  
FILL



CHROME MET.  
SLEEVE



WALL STILE

CENTER STILE AND PARTITION

END STILE

DETAILS FOR TYPE C (SUSPENDED AND BUILT UP STILES AND PARTITIONS) WILL BE FURNISHED UPON REQUEST



# VITROLUX

## COLOR FUSED TEMPERED GLASS

● In recent years architecture has been seeking a more skillful, a more colorful use of light. This architectural demand for a medium offering diversified colors and surfaces evenly luminous by better light diffusion has led to the creation of VITROLUX. Now, luminous color as an integral part of the structure itself opens up vast new design possibilities. Luminous buildings that "give off" light, not merely reflect light, become beacons of soft, glowing color. Storefronts are created that bring every eye to attention.

**VITROLUX** — a heat-treated glass, three to seven times stronger than ordinary  $\frac{1}{4}$ " plate glass and highly resistant to thermal shock — is offered in a wide range of colors, translucent or opaque. It becomes, therefore, the logical companion of VITROLITE (opaque colorful structural glass, a product of Libbey-Owens-Ford Glass Company) in achieving full realization of modern design possibilities in commercial fronts and in details of residential interiors.

**TWO TYPES** of Vitrolux are available — TRANSLUCENT in 10 colors, OPAQUE in 10 colors, or any two-color COMBINATION. Infinite design possibilities thus afforded are further increased when considered in conjunction with VITROLITE. Translucent colors available are White, Ivory, Bright Yellow, Yellow, Light Orange, Deep Orange, Chinese Red, Brilliant Red, Apple Green and Sun Tan.

**TRANSLUCENT VITROLUX** diffuses light with such exceptional uniformity that with properly designed lighting, no bright spots reveal the source of illumination. When not illuminated, Translucent Vitrolux appears to be a solid opaque colored glass.

No other material available today has the same combination of characteristics that makes Vitrolux the outstanding material for storefronts. Vitrolux provides even diffusion of light; the fire-fused colors are an integral part of the glass and because of its unusual resistance to thermal shock it is not affected by rain or snow coming in contact with the warmed surfaces of the lighted area.

An entire storefront may be designed to provide space for lighting and is thus transformed by the use of Vitrolux into a startlingly different new type of front — appealing to the eye — advanced in smartness. Vitrolux is ideally suited for lettering of exterior signs on storefronts and other commercial buildings. Cut-out wood or metal letters provide silhouette lettering. Also, signs of two-color Vitrolux may be furnished in two translucent colors or a translucent background with opaque letters. Any of these combinations produce a striking effect. Vitrolux is particularly applicable to theaterfronts, transoms, bulkheads and gas stations. And because of its exceptional strength and unusual resistance to thermal shock, Vitrolux is highly effective in the creation of attractive overhead hanging signs — particularly in localities where codes normally restrict the size of glass panels because of danger of breakage. For if broken, this new remarkable type of glass

crumbles into relatively small particles resembling bath salts — an added provision for public safety.

While Vitrolux is not unbreakable, its tempering process limits its susceptibility to breakage. Chipping or puncturing exposed edges or surfaces causes the glass to disintegrate into small crystals, and if not framed, the crystals have a tendency to fly apart.

**OPAQUE VITROLUX** is made in ten colors as follows: Black, Vitrolite Red, Maroon, Sea Green, Tropic Green, Irish Green, Van Dyke Brown, Greyhound Blue, Medium Blue and Wine Red. Six of these colors approximate the six standard plain colors of Vitrolite. Special opaque colors can be furnished on order.

## GENERAL SPECIFICATIONS FOR VITROLUX

**VITROLUX** is a Tuf-Flex Tempered Glass with the added feature of vitreous color — fire-fused on the back surface to become an integral part of the glass itself. Vitrolux color is of the sunfast type and offers the same natural resistance to weathering, crazing and checking as ordinary glass. Vitrolux Glass can only be furnished cut to exact size or pattern. All edgework, pattern cutting or drilling of holes, etc., must be done at the factory.

**DIMENSIONS** — Thickness  $\frac{1}{4}$ " only. Maximum length 72". Maximum breadth 48". No lights furnished in long, thin proportions exceeding 1 to 12. Examples of limits: 2" x 24", 3" x 36", 4" x 48".

**CUTTING** — Vitrolux cannot be cut or ground after manufacture. This necessitates careful layout work as exact dimensions must be given in ordering.

**EDGEWORK** — Unless otherwise specified, all Vitrolux is furnished with seamed (or swiped) edges at no extra charge. On order, Vitrolux will be furnished with polished edges, bull noses or most types of standard edgework. However, mitred edges over 30° cannot be furnished nor can bevels be deeper than  $\frac{1}{2}$ " face or one-half thickness of glass.

**TONG MARKS** — Always found along one edge. (Small lights may be produced without them.) Tong marks will usually be found along one or more edges. Small glass up to 12" square may be had without tong marks along one short dimension unless otherwise specified.

**DRILLED HOLES** — Minimum size of hole that will be drilled,  $\frac{1}{4}$ " diameter. All holes or apertures must have minimum distance of  $1\frac{1}{2}$ " from perimeter to edge of light.

**WARPAGE** — Slight warpage possible, never serious enough to interfere with installation. Our experience has shown that we encounter warpage up to the maximum listed below for various sizes. We do not anticipate that warpage will run to the maximum shown, but cannot accept orders without these leeways. Here are the tolerances: 1" to 36" long,  $\frac{1}{8}$ "; 37" to 48" long,  $5/32$ "; 49" to 60",  $3/16$ "; 61" to 72",  $7/32$ ".

**INSTALLATION** — Vitrolux should be handled as glass, bearing in mind, of course, that it can be neither worked nor altered on the job. Translucent Vitrolux should be installed exactly as ordinary glass is installed. When used for structural purposes, opaque Vitrolux should be installed exactly as structural glass is installed.



Structural (18) Glass

# LIBBEY · OWENS · FORD



# Essentials

## OF LIGHTING DESIGN FOR LUMINOUS ELEMENTS OF VITROLUX GLASS

**LIGHTING METHOD** — The recommended lighting of translucent Vitrolux Glass is accomplished by placing electric lamps behind the glass and enclosing them with reflecting surfaces. These reflecting surfaces may assume various shapes or forms referred to as Element Forms, and while no general set of design data can embrace all the conditions encountered in luminous architecture, the eight Element Forms illustrated in accompanying tables are typical of a wide range of applications.

**REFLECTING SURFACE** — It is extremely important to economy and effective luminosity to completely enclose the lamps behind the glass with a reflecting surface of high efficiency. All interior surfaces should have a white finish such as mat white paint.

**ELECTRICAL EQUIPMENT** — The lighting design is based upon the use of standard Mazda lamps, and no special fittings or reflectors are required in most elements.

**BRIGHTNESS** — The desirable brightness for luminous displays governs the lamp wattage to be selected. Brightness is the degree of brilliancy of a surface and is measured in Foot-Lamberts. A luminous surface of too high brightness causes glare while a luminous surface too low in brightness is drab and unattractive. An installation of any given Foot-Lamberts will have an effect of low brightness or high brightness under varying conditions such as size and brightness of near-by displays and surrounding areas and size of the installation itself. And different types of commercial establishments require not only a careful color selection but different degrees of brightness to provide the desired effect. With certain colors, too, a lower brightness often proves effective.

**USE OF TABLES** — The following table lists various types of installations and recommends the degree of brightness most advantageous in low-, medium- or high-brightness districts. In selecting the lamp wattages from Table II only an approximate brightness value is required from Table I.

(TABLE I)  
SUGGESTED AVERAGE BRIGHTNESS  
VALUES FOR VITROLUX  
(In Foot-Lamberts)

Type of Luminous Installation	General Brightness of District		
	Low	Medium	High
Luminous store fronts, luminous transoms, luminous backgrounds and signs.....	80-130	100-200	150-350
Projecting units of dominant character.....	50-130	70-170	150-300
Decorative flush units (Principal units in design)....	30-100	50-150	100-300
Translucent letters with an opaque background.....	150-200	200-400	300-600
Marquees, pylons, gasoline service stations, etc.....	80-150	100-250	200-400
Interior ceiling installations: (Approx. upper limits)			
High ceilings .....	500		
Low ceilings .....	250		
Interior bathroom and shower ceilings .....	75		

**ELEMENTS** — The majority of the eight luminous element forms illustrated and tabled below are adaptable to typical Vitrolux applications. Each offers advantages to particular installations such as — No. 3, shallow background; No. 1, use of lower wattage; No. 5, more suitable to corner installations.

**LAMP LOCATION AND SIZE** — After the selection of the element form, the table accompanying the element chosen will determine such factors as size and wattages of lamps, distance from the back of the glass to the center of the lamp and correct spacing between lamps. In the tables below,

W—represents the width of the Vitrolux glass to be illuminated.

D—is the distance from the back of the Vitrolux glass to the center of each lamp.

S—is the maximum spacing between lamps for uniformity of brightness (measured between centers of filaments).

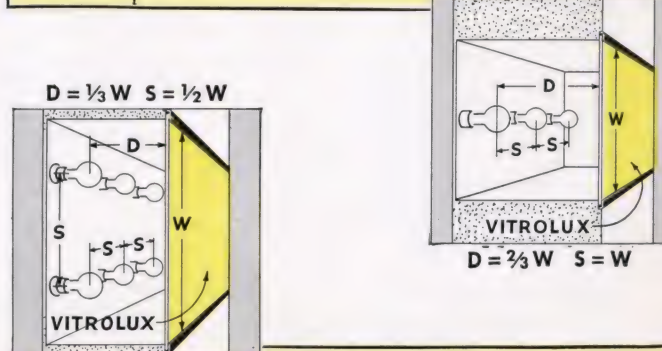
**EXAMPLE** — For a transom sign 30" high the element form must first be chosen. If, say, element form 2 is chosen, run down the column headed W to 30 and we find that the lamps should be spaced 10 inches behind the glass and 15 inches apart. The other figures at the right represent varying degrees of brightness as set forth in Table I. If brightness 150 is selected, the figure at the top of the column indicates that 60-watt lamps should be used.

(TABLE II)

### COMPUTED AVERAGE BRIGHTNESS VALUES IN FOOT-LAMBERTS FOR LUMINOUS ELEMENTS OF DIFFUSING WHITE VITROLUX GLASS

(Depreciation from initial values has been allowed for — initial brightness x 0.7)

Dimensions in Inches	ELEMENT FORM No. 1													
	Watts per Lamp													
	W	D	S	10	15	25	40	50	60	75	100	150	200	300
6 4 6				90	160	290	500							
9 6 9				40	70	130	220	295	415	535				
12 8 12				20	40	70	125	165	230	300	430			
15 10 15					25	45	80	105	150	195	275	465		
18 12 18						30	55	75	105	135	190	320	455	
24 16 24							30	40	60	75	105	180	255	410
30 20 30								25	35	50	70	115	165	260
36 24 36									25	35	50	80	115	180
48 32 48											25	45	65	105

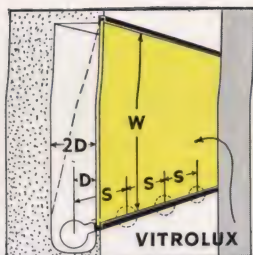


Dimensions in Inches	ELEMENT FORM No. 2													
	Watts per Lamp													
	W	D	S	10	15	25	40	50	60	75	100	150	200	300
12 4 6				90	160	290	500							
18 6 9				40	70	130	220	295	415	535				
24 8 12				20	40	70	125	165	230	300	430			
30 10 15					25	45	80	105	150	195	275	465		
36 12 18						30	55	75	105	135	190	320	455	
48 16 24							30	40	60	75	105	180	255	410

Structural (19) Glass

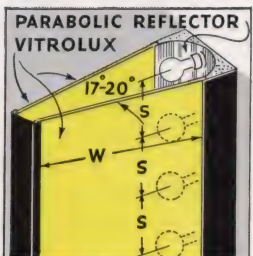
# QUALITY GLASS PRODUCTS





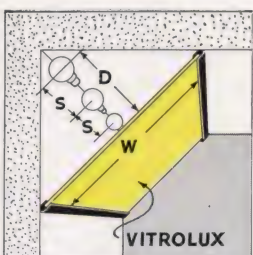
$$D = \frac{1}{10} W \quad S = \frac{2}{10} W$$

Dimensions in Inches		ELEMENT FORM No. 3												
		Watts per Lamp												
W	D S	10	15	25	40	50	60	75	100	150	200	300	500	750 1000
18	2 4	25	45	85	145	190	265	345	490					
24	2 1/2 5		25	50	85	115	160	210	295	500				
30	3 6			35	55	75	105	140	195	330	470			
36	3 1/2 7				40	55	75	100	140	240	335	535		
48	5 10					30	40	50	75	125	175	280	480	



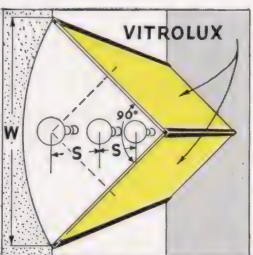
$$S = \frac{2}{5} W$$

Dimensions in Inches		ELEMENT FORM No. 4												
		Watts per Lamp												
W	D S	10	15	25	40	50	60	75	100	150	200	300	500	750 1000
18	8			35	65	85	115	155	220	370	520			
24	10				40	50	70	100	130	220	315	500		
30	13					30	45	55	80	135	195	310	530	
36	15						30	40	60	100	135	215	380	555
42	18							30	40	70	100	165	270	400
48	21								30	55	75	120	205	300 425



$$D = \frac{2}{5} W \quad S = \frac{3}{5} W$$

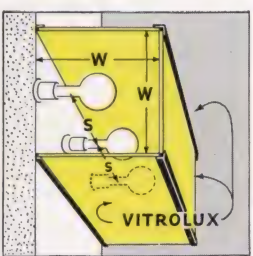
Dimensions in Inches		ELEMENT FORM No. 5												
		Watts per Lamp												
W	D S	10	15	25	40	50	60	75	100	150	200	300	500	750 1000
12	5 7 1/2	40	65	125	215	285	400	515						
15	6 9		25	45	85	140	190	265	345	490				
18	7 10 1/2			30	60	100	135	190	245	350	590			
24	10 15				30	55	70	100	130	185	310	440		
30	12 18					35	45	65	85	120	210	290	465	
36	14 21						35	45	60	85	150	210	335	575
48	19 29							25	35	50	80	110	180	320 450



$$S = \frac{1}{2} W$$

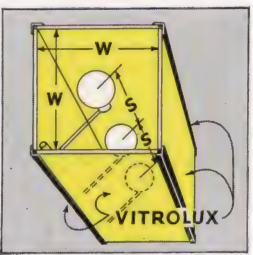
Dimensions in Inches		ELEMENT FORM No. 6												
		Watts per Lamp												
W	D S	10	15	25	40	50	60	75	100	150	200	300	500	750 1000
12	* 6	40	70	130	220	295	415	535						
18	* 9		30	55	100	130	185	240	340	570				
24	* 12			30	55	75	105	135	190	320	445			
30	* 15				35	45	65	85	120	205	290	465		
36	* 18					35	45	60	85	145	200	320	555	
48	* 24						25	35	50	80	115	180	310	450

\*Position Lamps Equidistant from the two sizes.



$$D = \frac{1}{2} W \quad S = \frac{3}{4} W$$

Dimensions in Inches		ELEMENT FORM No. 7												
		Watts per Lamp												
W	D S	10	15	25	40	50	60	75	100	150	200	300	500	750 1000
12	6 9		25	50	85	115	160	205	290	495				
18	9 13 1/2			20	40	50	70	90	130	220	315	500		
24	12 18					30	40	50	75	125	175	280	480	
30	15 22 1/2						25	35	45	80	110	175	310	450
36	18 27							25	35	55	80	125	215	310 445
48	24 36								20	30	45	70	120	175 250



$$D = \frac{1}{2} W \quad S = \frac{7}{10} W$$

Dimensions in Inches		ELEMENT FORM No. 8												
		Watts per Lamp												
W	D S	10	15	25	40	50	60	75	100	150	200	300	500	750 1000
12	6 8 1/2			45	80	105	145	190	270	460				
18	9 12 1/2				35	50	65	85	125	210	295	470		
24	12 17					25	35	50	70	115	160	260	445	
30	15 21						25	30	45	75	105	165	290	420 595
36	18 25								30	50	75	115	200	290 410
48	24 34									30	40	65	110	160 230

(TABLE II—Continued)

**NOTE:** These tables are based on enclosed white reflecting surfaces reflecting 75% of the light.

For the sake of simplicity, only a single sheet of Vitrolux glass covers the face of the element in each of the element forms illustrated. But it is, of course, possible to use any desired number of pieces of glass for the face of the element.

To produce luminous areas larger than those shown in the tables, element forms may be combined one above or beside another. For example, the design of lighting for an area 12 ft. high may be composed of 3 units of Element Form No. 1, each 48" high, and the size and location of lamps determined directly from the table of Element Form No. 1. In this case the abutting reflecting surfaces of the three combined elements may be omitted, enclosing the lamps with the outer end and rear reflecting surfaces only.

If such a design results in a depth greater than practical, the distance behind the glass may be reduced by designing the lighting to be comprised of four element forms each 36" high, etc., etc.

## LIGHTING DESIGN OF VITROLUX IN COLORS OTHER THAN WHITE

The lighting design for other colors should be determined by the same procedure followed in the design for lighting for white Vitrolux. The same values of "D" and "S" should be used regardless of color.

The lamp wattages as determined in Table II for white Vitrolux may also be used for

Ivory  
Yellow  
Bright Yellow  
Light Orange  
Deep Orange  
Chinese Red  
Brilliant Red

It is suggested that the next larger size of lamp be used for

Sun Tan  
Apple Green

For example, in working out an installation in which Table II requires 60-watt lamps for white Vitrolux, use 75-watt lamps instead, if Apple Green Vitrolux is used.

In figuring wire sizes and circuit layout, it is good practice to allow capacity for at least one size larger lamp than planned in order to provide a margin for testing or future increases of brightness.



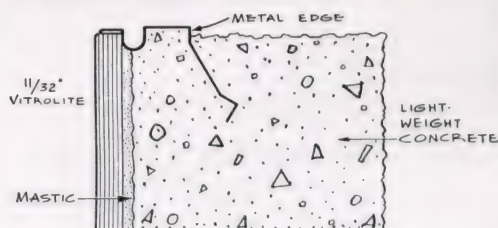
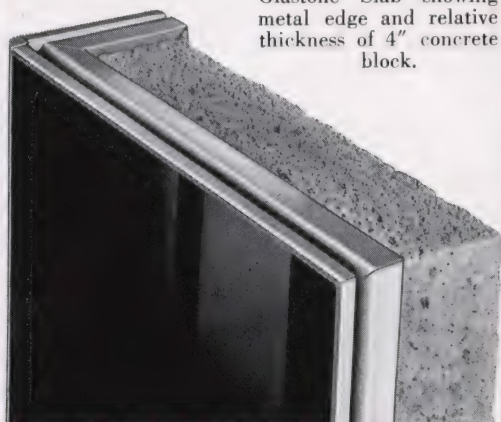
Structural (20) Glass

LIBBEY · OWENS · FORD



# GLASTONE

Glastone Slab showing metal edge and relative thickness of 4" concrete block.



Cross section diagram of Glastone slab showing how metal edge is cast into the concrete block to insure a permanent anchorage. Note full-coverage asphaltic adhesive which provides the bond between the Vitrolite facing and concrete block.



## THE NEW, LOAD-BEARING, COLORFUL MASONRY UNIT

● A very definite demand exists today for modern Structural Glass as a masonry unit to be built into and become an integral part of a building. This demand is met with Glastone — a new and important product of Libbey-Owens-Ford Glass Company.

Glastone is a specially prepared, lightweight prefabricated concrete slab to which a permanent facing of colorful Vitrolite Structural Glass is bonded and mechanically anchored.

**HOW INSTALLED** — Glastone is used and installed like other masonry units. No special tools are required. Any competent mason can install Glastone just as he installs units of limestone, granite, terra cotta or similar building materials. Glastone is set in cement mortar. Standard U-anchors are used for anchorage and running bond as in other masonry. Glastone gives you in a practical form, the characteristic qualities of concrete plus the beautiful colors, lustrous surface, weather resistance and easy cleaning for which Vitrolite Glass is known everywhere.

**HOW FORMED** — The Vitrolite surfacing of Glastone is bonded to the concrete slab by a waterproof adhesive. This adhesive is applied under pressure, over the entire back surface of the Vitrolite, with 100% coverage. This adhesive layer, approximately  $\frac{1}{8}$ " thick, also serves to take up any differences in expansion and contraction between glass and concrete.

**METAL BINDER** — To further secure the bond between the concrete slab and its Vitrolite facing, the Vitrolite is mechanically anchored to the concrete by a specially designed rustproof Metal Edge Binder which extends around the entire perimeter of the slab. This specially designed Metal Binder has three important functions:

First — The back edge of the metal is crimped and the concrete is cast after the metal edge has been applied around the Vitrolite. This locks the metal edge into the concrete in the same manner that steel is anchored in reinforced concrete.

Second — The Metal Binder has a high flat shoulder which, in the finished slab of Glastone, is entirely backed by solid concrete.

This flat shoulder is the load-bearing point of the Metal Binder and extends  $\frac{1}{32}$ " higher than the part of the Metal Binder that comes in contact with the Vitrolite itself.

When Glastone is installed, the flat metal shoulders of the Metal Binders and the concrete portions of the Glastone slabs carry the entire load of the wall.

The Vitrolite facing of each Glastone slab is entirely free from pressure or load from any direction.

The flat, raised shoulder of the Metal Binder also serves as a separator between the mortar joint behind the shoulder and the caulked joint in front of it.

Third — The Metal Binder has a half-round groove at the mastic line. This construction offers a continual spring pressure by the Metal Binder on the Vitrolite facing, regardless of expansion or contraction. The groove also forms a "key" for the caulking compound in the joint and prevents the compound from being easily washed out.





# GLASTONE

● The grip of the Metal Binder on the Vitrolite facing, plus the complete 100% asphaltic adhesive bond, fastens the Vitrolite facing to the concrete block.

If the face of Glastone is damaged after installation it can be replaced. (This is not true of most masonry units.) However, the damaged face must first be chipped off with a cold chisel — a further demonstration of the secure fastening of the glass to the concrete.

**ENDURING BEAUTY** — Glastone derives its lustrous beauty from the beauty of Vitrolite. Because it is glass and because the rich colors of Vitrolite are a part of the material itself, the beauty of Glastone is enduring.

Weather has no effect upon glass, so weather has no effect upon Glastone. Soap and water alone will bring back the original freshness and beauty of a Glastone wall even after many years of exposure. An occasional cleaning will keep it like new.

**COLORS** — Glastone utilizes all of the colors and finishes of Vitrolite and therefore offers a wide color range.

For decorative effects, two or more colors may be combined on one Glastone slab—each color being separated from the other by a waterproof joint. Glastone offers unlimited opportunity for the expression of colorful beauty in modern building design.

**A SOLID, DURABLE LOOK** — A characteristic of a finished Glastone wall is great solidity. This is because the joints are about  $\frac{1}{4}$  of an inch wide and when caulked, truly gives each Glastone block the appearance of massive solid masonry.

**NO METAL SHOWS** — The beauty of the finished Glastone wall is also enhanced by the fact that no part of the Metal Binder is exposed. As the Binder covers only the edge of the Vitrolite facing, extending to within  $\frac{1}{16}$ " of the exterior face, it is completely concealed when the caulking is completed.

**GREATER STRENGTH** — Many building codes call for a compressive strength of 1000 pounds per square inch, over the gross area, for exposed masonry. Glastone concrete masonry tests better than 2000 pounds over the gross area. This gives a factor of safety above requirements.

**LIGHTER WEIGHT** — Glastone weighs 90 to 100 pounds per cubic foot as compared to 145 pounds per cubic foot for cast stone or similar masonry materials. This means a saving in structural costs and also in transportation. Glastone is carried under the Fifth and Sixth Class freight rates.

**FIRE RESISTANCE** — Glastone is a fire-resisting masonry material. Vitrolite, metal and concrete are all incombustibles. The lightweight concrete is frequently used to insulate high temperature furnaces.

**INSULATION** — Glastone offers two to three times as effective insulation as cast stone, brick or similar building materials. As an example, 4" thick Glastone has approximately the same insulation value as an 8-inch thickness of common brick.

**JOINT STRENGTH** — Glastone concrete has a natural affinity for mortar which develops a high joint strength.

**MOISTURE-PROOF** — Moisture is carried through brick and other masonry materials by capillary action. Glastone concrete is extremely low in capillarity. This quality, together with the waterproof qualities of Vitrolite and of caulked joints, when properly applied, makes a Glastone wall practically impervious to moisture penetration.

**PLASTERING ON GLASTONE** — Glastone concrete has a strong bond with plaster. Plastering directly upon the back of Glastone is approved practice for interior walls. It will not only speed up the work but can make an important saving in the amount of plaster used and possible elimination of furring and lath.

**GLASTONE SIZES** — Glastone units can be furnished in sizes having a surface area up to 12 square feet in 4" thickness and 8 square feet in 8" thickness.

In addition to plain ashlar units, special shapes and surface forms (of flat or bent Vitrolite) can be cast for spandrels, frieze courses, ornaments, etc.

Lettering and ornamentation may be applied at the factory and aluminum or other metal trim can be cast as an integral part of the Glastone slab.

Glastone is drilled at our plant to accommodate signs or other attachments, as specified.

**THICKNESSES** — Glastone slabs are fabricated in 4" and 8" thicknesses and may be cast to conform to steel members, lintels, window details, etc. Glastone is used in accordance with building code allowances for masonry materials as follows:

1. Four-inch Glastone masonry facing is used in skeleton buildings to unlimited heights. The Glastone facing must be supported at intervals up the building on horizontal angles attached to the building's skeleton according to standard practice. The 4" Glastone facing is anchored to 8" masonry backing with metal anchors in every horizontal joint.



Structural (22) Glass

# LIBBEY • OWENS • FORD



# GLASTONE

2. Four- and eight-inch Glastone "bonded" walls consist of a Glastone facing and a backing of other masonry. The facing is "bonded" to the backing by making part of the facing 8" Glastone and the remainder 4" Glastone. The Glastone is considered as part of the required thickness of the wall. Metal anchors are provided in each horizontal joint not adjacent to an 8" course to anchor the 4" Glastone to the masonry backing.

3. Eight-inch Glastone walls may be used for exterior load-bearing walls in one-story buildings; the interior face providing a perfect base for plaster.

4. Four-inch Glastone interior partitions are non-load-bearing. The lower portion may be Glastone and the upper part may be other masonry.

**RUNNING BOND** — Where the design calls for vertically aligned joints, then metal ties in every horizontal joint across each vertical joint provide "running bond."

## SPECIFICATIONS

**GLASTONE FACING** — Where shown on the drawings, the exterior wall face shall be GLASTONE. Where Glastone is specified, the Contractor shall furnish (and install) all Glastone properly marked, together with all loose anchors required to bond it to the backing. The Glastone shall be as distributed by Libbey.Owens.Ford Glass Company, Toledo, Ohio.

**GENERAL** — In general, the GLASTONE is to be (4 and/or 8) inches thick, (see sections for deviations from this dimension) composed of a Vitrolite glass facing supported in a metal frame which is cast into a lightweight concrete backing with an asphaltic bond-pad between the glass facing and the concrete backing. In setting the GLASTONE the mortar bed is to be confined to the concrete backing, and the space between the metal binder edges is to be reserved for later pointing with caulking compound.

**SCOPE OF WORK** — This Contractor shall receive the GLASTONE at the site, store them safely and furnish all labor, other materials such as mortar, caulking compound, etc., and services necessary and required for the erection of the GLASTONE as indicated on the drawings and herein specified.

In handling the GLASTONE the Contractor shall take especial care to avoid chipping and breakage of the Vitrolite facing or damage to the metal binder edge.

**DRAWINGS AND DETAILS** — Libbey.Owens.Ford Glass Company will furnish shop drawings and setting plans for the GLASTONE, showing sizes, sections and dimensions of the pieces, jointing, bonding, anchoring and all other necessary details. Copies of all setting plans used in setting the GLASTONE shall bear the Architects' written approval. Each piece of the GLASTONE will have a setting number.

**CLEANING, SETTING AND POINTING** — This Contractor shall unload, receipt for, and protect and erect



all GLASTONE covered by this specification, setting and anchoring it in accordance with the requirements of the setting plans.

All GLASTONE shall be set in mortar similar to that specified under the heading Brick Masonry, and all surfaces of the concrete backing of the GLASTONE blocks shall be sponged well with clean water just before setting. The use of pinch bars except on unexposed surfaces is strictly prohibited. Each unit shall be set accurately, true to line, level and plumb by competent workmen on a full and even bed of mortar covering the entire edge surface of the concrete backing. Head joints shall be similarly filled with mortar to the full thickness of the concrete backing. Any mortar that flows from the joint into the space between the metal binder edges of the blocks shall be raked out immediately. A uniform joint space  $\frac{1}{4}$ " glass to glass shall be maintained by adjusting the mortar bed thickness to suit.

Each GLASTONE unit shall be adjusted on its bed by pressing in place or striking the concrete backing with a wooden mallet. Wood wedges may be used but must be used on the back side only. Before pointing, all face joints between metal binder edges shall be cleaned by brushing or blowing with compressed air to remove deposited grime and dirt.

The face joints between the metal binder edges shall then be carefully and neatly pointed to a sufficient depth to reach the groove and form a key. All caulking to be done to the satisfaction of the architects. The caulking compound shall be an approved brand of gun grade caulking compound. This material shall be packed solidly into the joints and any excess material on the surface shall be carefully wiped off the surface to provide a neat, even and clean finish of the joint. The building face shall then be washed clean, using soft cloths. Steel wool, metal scrapers, or any other mechanical method likely to scratch the glass surface shall not be used.

**SALES AND DISTRIBUTION** — Glastone is distributed by Libbey.Owens.Ford Glass Company exclusively. All inquiries should be directed to Libbey.Owens.Ford Glass Company, Nicholas Building, Toledo, Ohio. All plans and specifications should be sent to the same address. Shop drawings and setting plans will be furnished by Libbey.Owens.Ford Glass Company. Further information will be promptly supplied.



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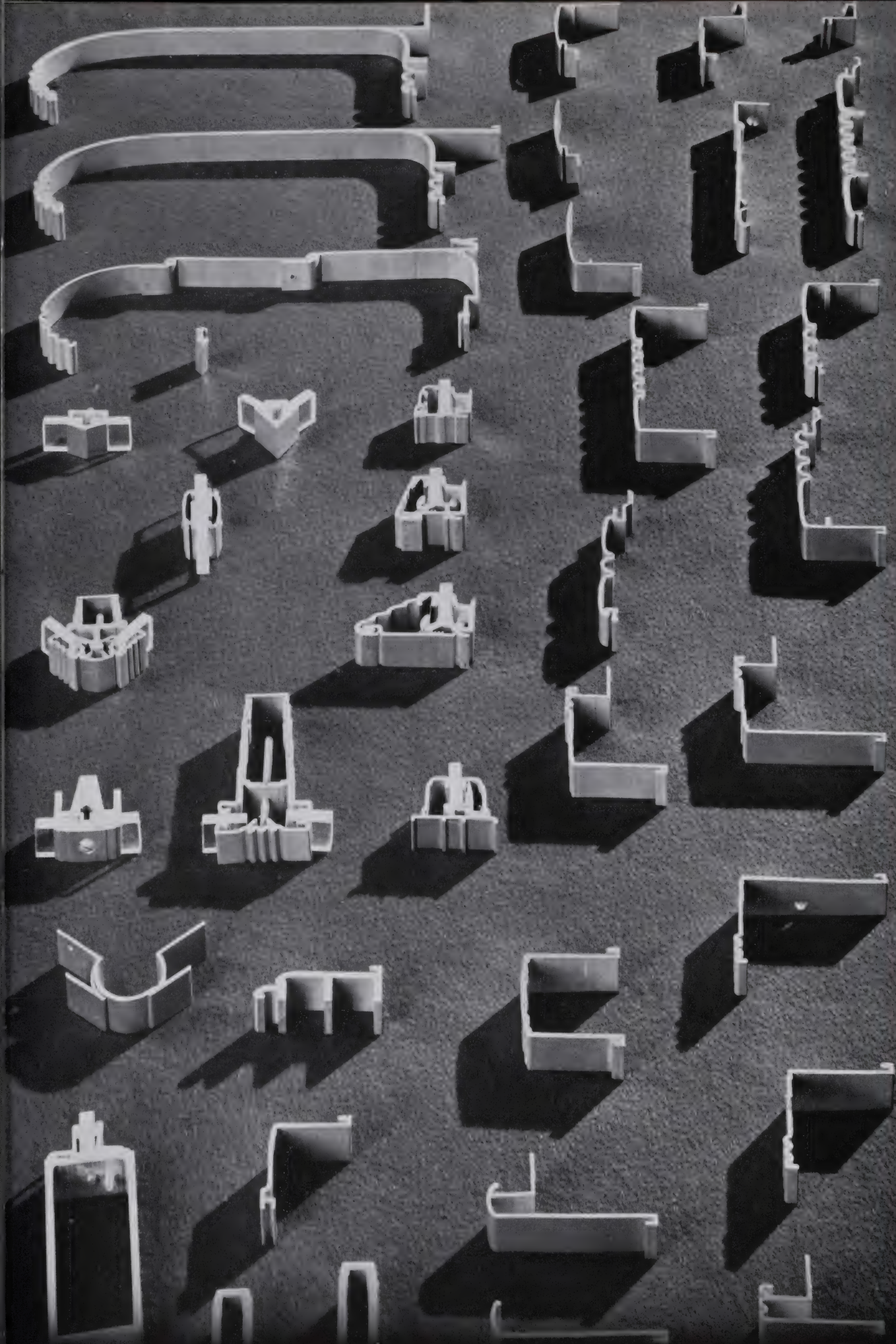
*Structural Glass  
Products*

**VITROLITE - VITROLUX  
GLASTONE**



**LIBBEY • OWENS • FORD GLASS COMPANY**





**EXTRUDABLE**

**LIBBEY • OWENS • FORD GLASS COMPANY**



*You the Architect reap*  
these benefits with  
**EXTRUDALITE**

•  
**Versatility of Design**  
with standard members

•  
**Clean cut finished job**

•  
**Distortion free**  
metal surfaces

•  
**Perfectly finished bends**

•  
**Minimum maintenance**  
on solid sections



Extrudalite (2)

**L . O . F    EXTRUDALITE**



Regardless of the size of your budget there are Extrudalite combinations of members available that will give you all of these extra benefits.

Strong and permanent  
construction

•

Accurate Interpretation  
of Architect's design

•

Leakproof and  
dustproof installation

•

Greatly reduced hazard  
of glass breakage

•

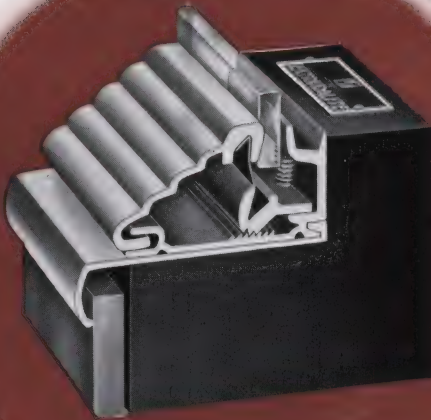
Personal prestige  
from a higher  
standard of jobs.



STORE FRONT METAL

EXTRUDALITE





**EXTRUDALITE SASH NO. 500** provides a comparatively deep reveal for the glass, and a substantial band of metal as a frame for the store window.

The interlocking teeth of the base member, and the clip member which is attached to the face piece, allow identical action and pressure to be applied at all points *regardless of the thickness of the glass.*

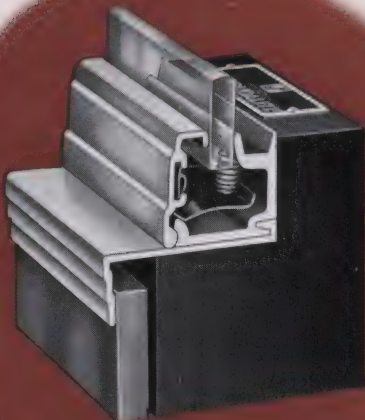
After the face piece is in loose setting position, held there by the tongue-and-groove fitting at the front, the installer runs down the set-screw from behind until it locks into permanent setting position.

The amount of cushioned pressure thus applied to the glass is *pre-determined*. It is impossible to apply too much tension or pressure.

**THE NO. 300 SASH** contains the same glass setting advantages as No. 500 but is of medium size and cost and due to its vertical shape and more nearly flush construction embodies slightly different mechanics in safely and surely holding the glass. The screw bears against the spring flexing it to apply pre-determined pressure against the glass through pivoting the sash face on the gutter.

The spring is like a *transformer* because it transforms the direct rigid pressure into cushioned pressure. The face piece may be likened to a *distributor* because it distributes the cushioned pressure *evenly* along the face of the glass.

Reversely, the spring also acts as a shock-absorber because it absorbs all shocks, vibrations and expansions into itself. The same spring also acts as a stabilizer by throwing the pressure back against the glass under contraction.



**THE NO. 150 SASH** is the smallest of the Extrudalite sash. It is completely extruded, both face and gutter, yet the price is within the range of the most economical job. This offers to the low-priced field, all advantages of extruded construction.

The No. 150 Sash also has spring pressure by the use of a spring of stainless steel. The screw bears on the spring which transforms the force into controlled spring pressure against the glass. The No. 150 Sash thus provides a neat, safe setting for plate glass. In common with No. 500 and No. 300 Sash, glass breakage from ordinary setting causes is reduced to a minimum.



Extrudalite (4)

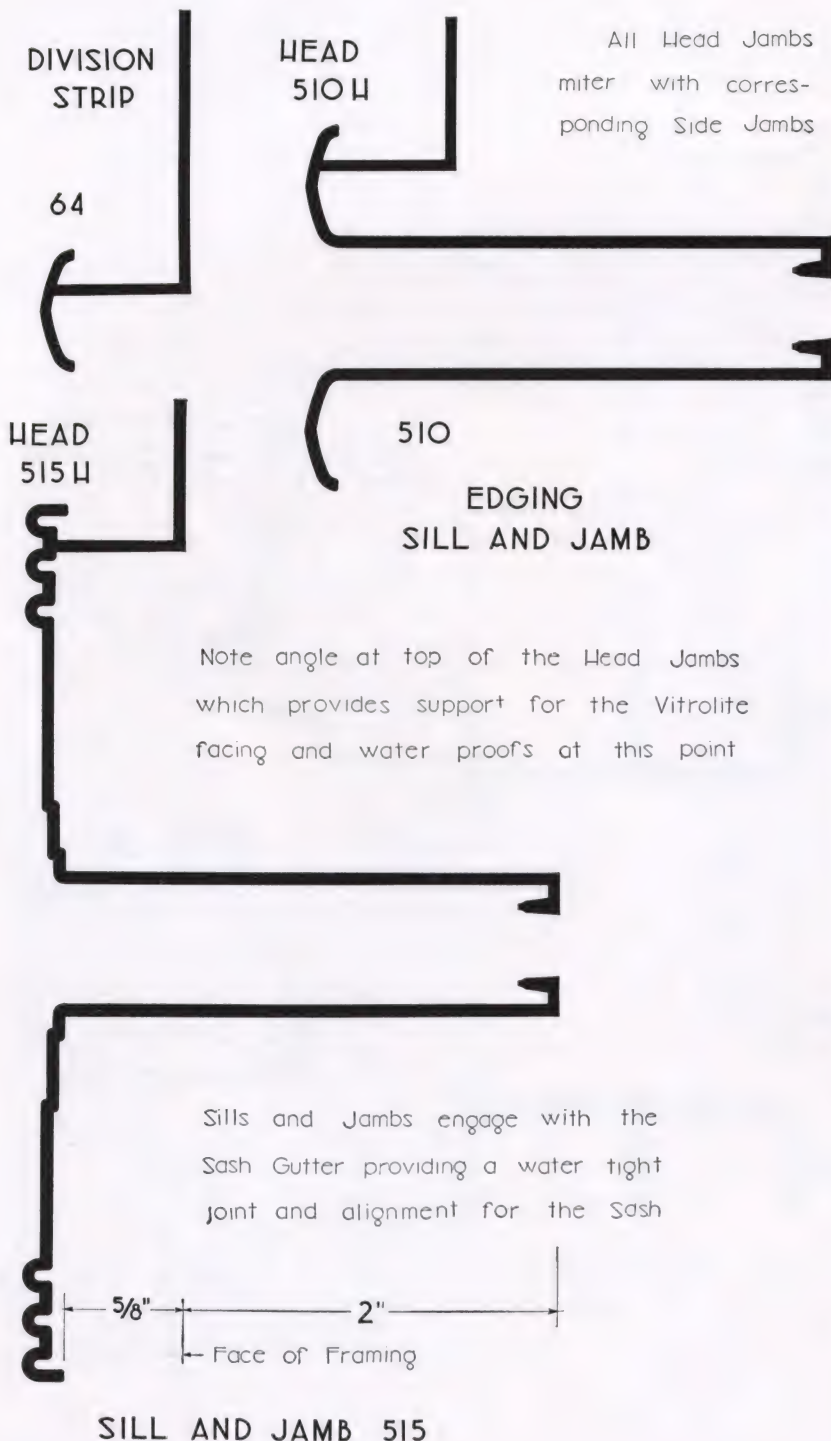
**L . O . F    E X T R U D A L I T E**



The following sheets give in simple basic form full sized cross sections of some representative members in the line in order to give the "feel" of individual mouldings when choosing desired sections. These full sized sections may also prove useful in solving and detailing special conditions with various combinations of standard items. For standard vertical and horizontal sections through typical storefronts, will be found sheets giving details at reduced

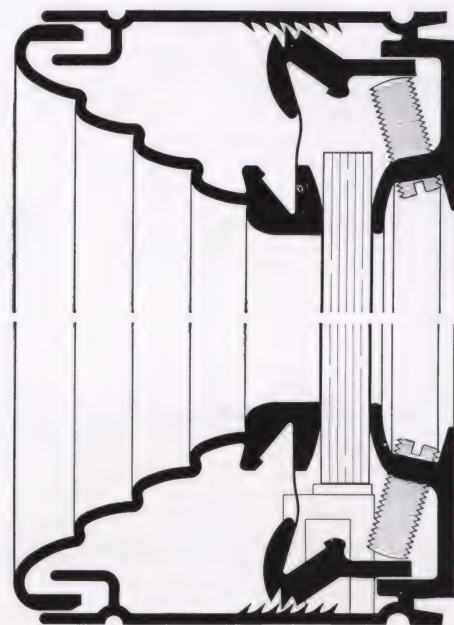
scale. They are offered as a guide to correct and practical combinations of the individual members and are drawn to the small scale in order to make the job of detailing lighter.

Backed up with clear cut and adequate specifications, complete storefront construction details insure the job being finished exactly as designed and planned.



See Sheet Number 11 for quarter size Vertical and Horizontal Sections using these elements

All sections drawn are actual size



**SASH 500**





We will be glad to assist in working out special condition details.

All Extrudalite sections are designed to assemble and install in a watertight and dustproof manner.

Sash ventilation holes do not prevent nor remove frost or condensation from the inside of the windows; they do, however, admit damaging dust. Drainage holes at the bottom sash rail serve their intended purpose for only a short time until the

inside of the sash packs with dirt and debris, they then become holes for blowing dust into the window. Elimination of this very questionable feature helps to maintain bright clean displays, and improves the appearance of sash face pieces. Extrudalite provides a generous sized interior gutter to catch and hold water from window washing and it is a simple matter to soak up these drippings with sponge or chamois after each cleaning. Make your

# **VITROLITE DIVISION STRIP**

65

Use 65 with  
15 310 and  
515

# **HEAD 310 H**

Use 15 and  
310 with both  
100 and 300

See Sheet Number 12  
for quarter size Vertical  
and Horizontal Sections  
using these elements

All sections  
are actual size

# **HEAD 15 H**

For variety  
of shapes  
see other  
sheets

310

# **EDGING SILL AND JAMB**

Numbers 15 cover  
the framing and  
the edge of the  
Vitrolite

318

318

# **SELF SUPPORTING SILL AND JAMB**

Use 318 with  
masonry construction

15

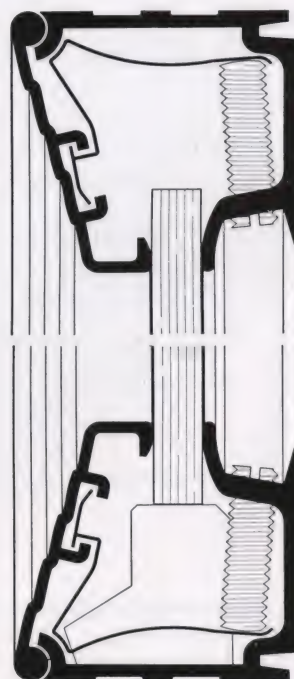
Note 15 and 515  
differ in depth  
of reveal

5/8"

1 5/8"

Face of Framing

# **SILL AND JAMB**



**SASH 300**



Extrudalite (6)

**L . O . F    E X T R U D A L I T E**

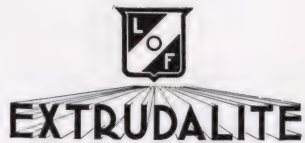
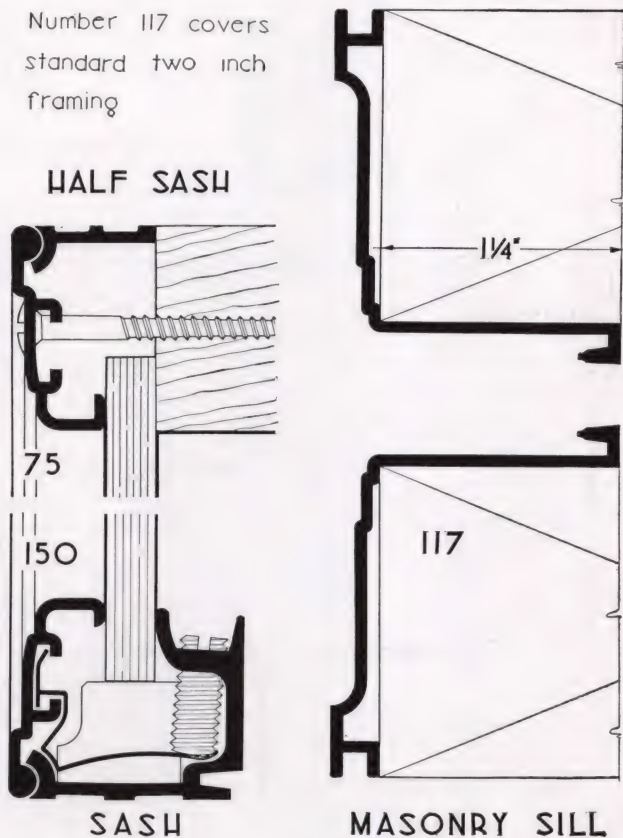
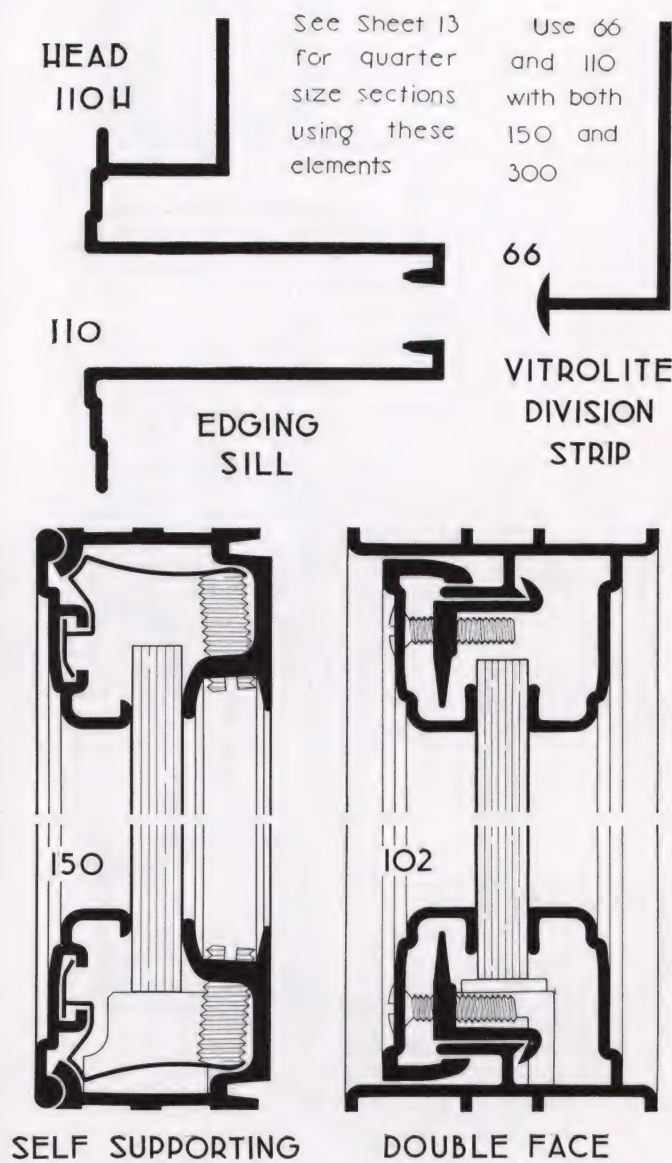


windows watertight and dustproof with the proper Extrudalite sections.

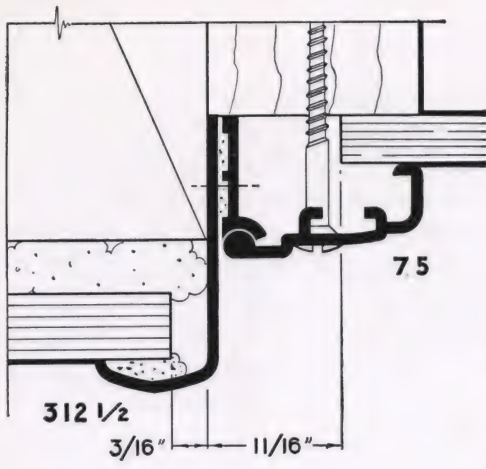
Extrudalite basic quality at minimum cost is featured throughout the Number 150 series. No job has to be designed and planned so modestly that it must be denied the handsome sturdiness and clean cut lines of Extrudalite. Note the versatility of uses possible with Double Face Sash Number 102. It is the practical support and trim for various types of glass partitions. It is well suited for residential picture windows.

The Half Sash Number 75 is furnished in two piece construction. The two piece sash allows for

adjustment to various glass thicknesses without the usual gapping at the bottom of the face which is unsightly and not watertight. This is a decided improvement in half sash construction. Also available is Half Sash Number 76 in one piece. However, we recommend that you use half sash construction only when it is absolutely necessary from a cost standpoint. The small savings effected by using this item make such occasions rare. When used, be sure to specify that the wood stop which receives the back of the glass is to be of fine quality and planed to perfect alignment. Under no conditions should half sash be used at the bottom of glass.

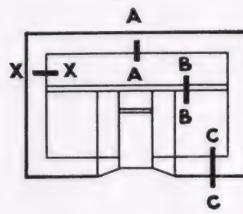




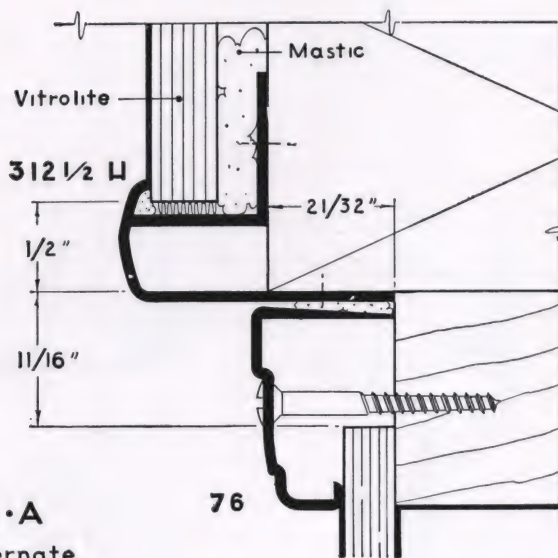


X-X

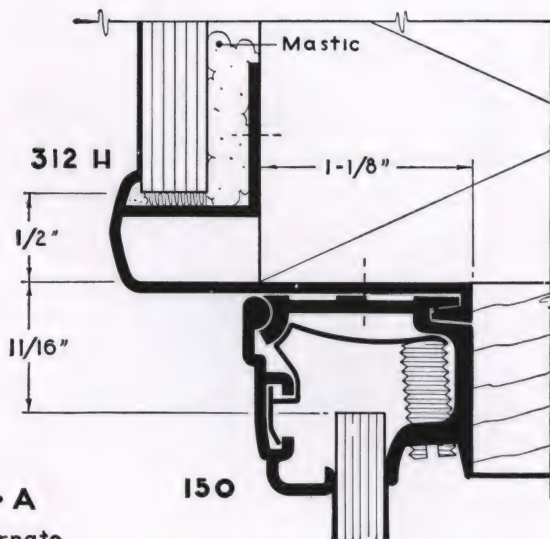
**EXTRUDALITE**



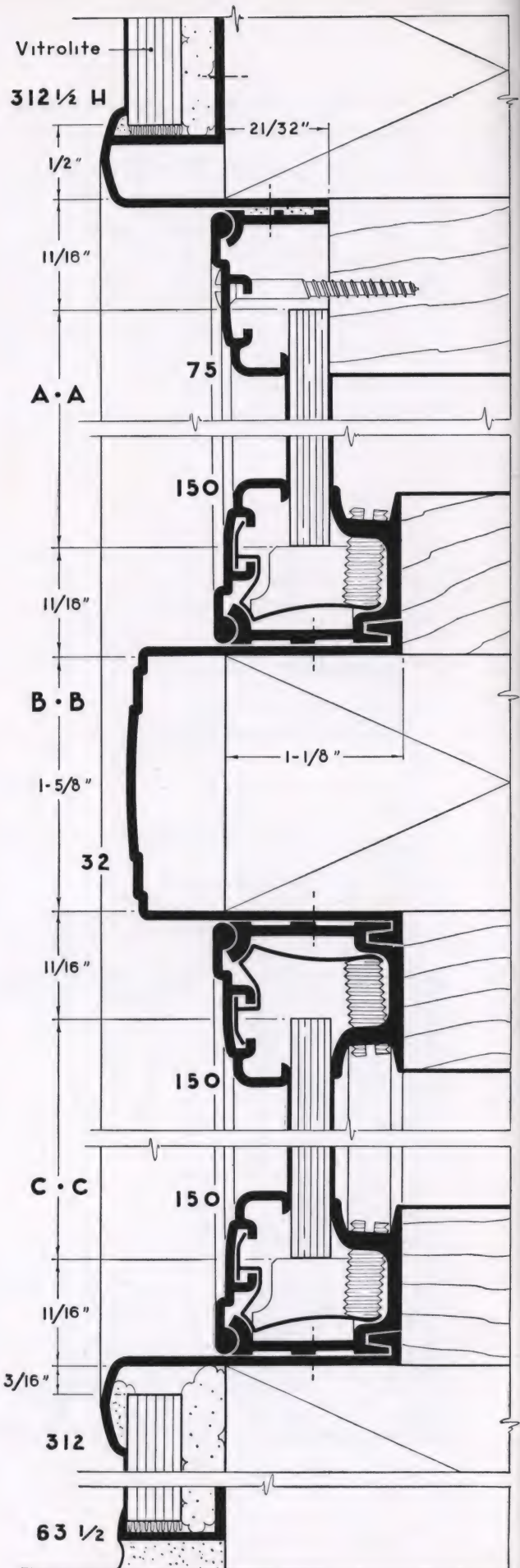
Key Elevation



A-A  
Alternate



A-A  
Alternate

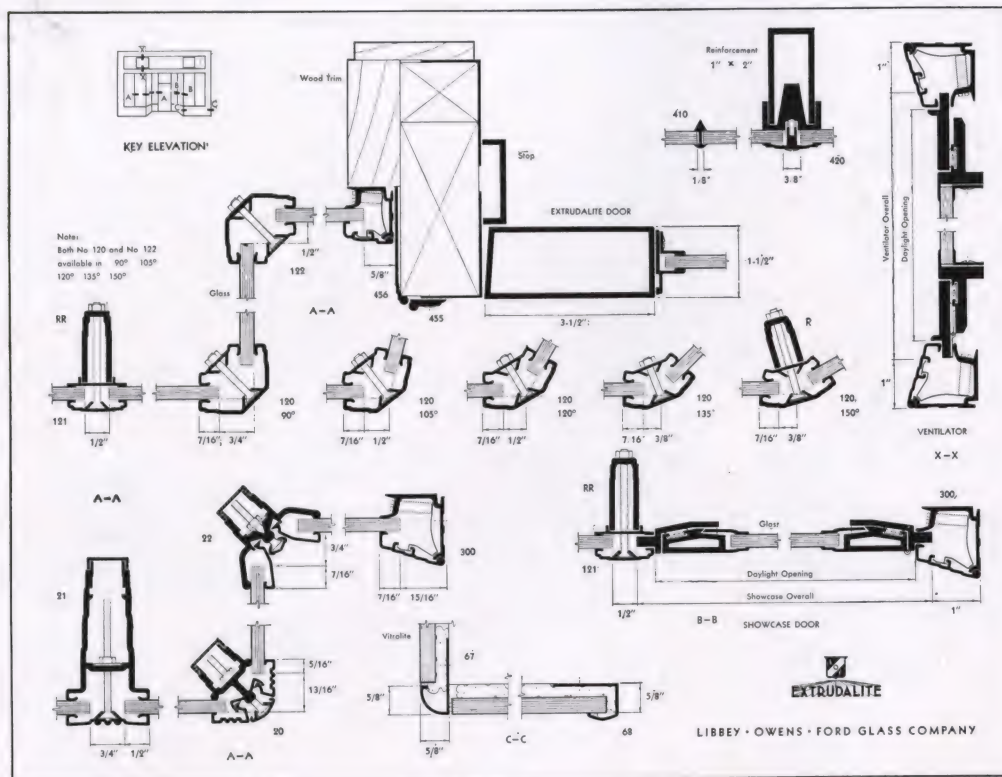
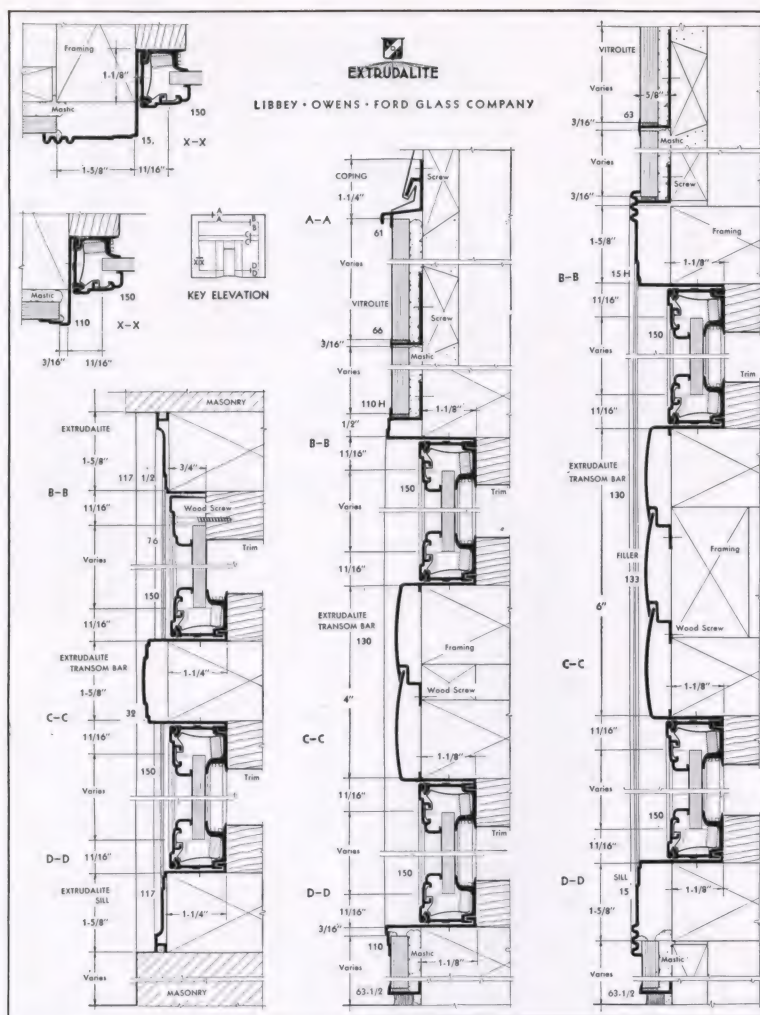


Extrudalite (8)

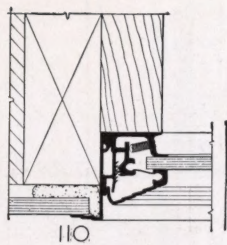
**L.O.F. EXTRUDALITE**



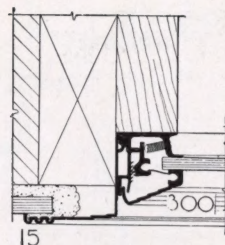
This page and the following pages 10 and 11 show Extrudalite members at one quarter full size illustrating their use with each other and adjacent materials.







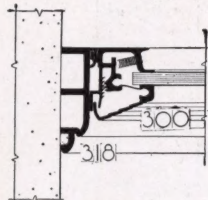
SIDE JAMB



SIDE JAMB

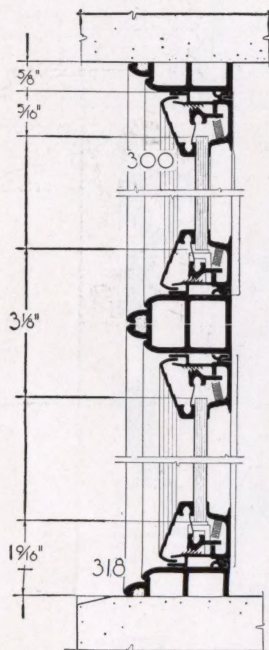
All framing is  
on one plane

Cast End Brackets  
furnished



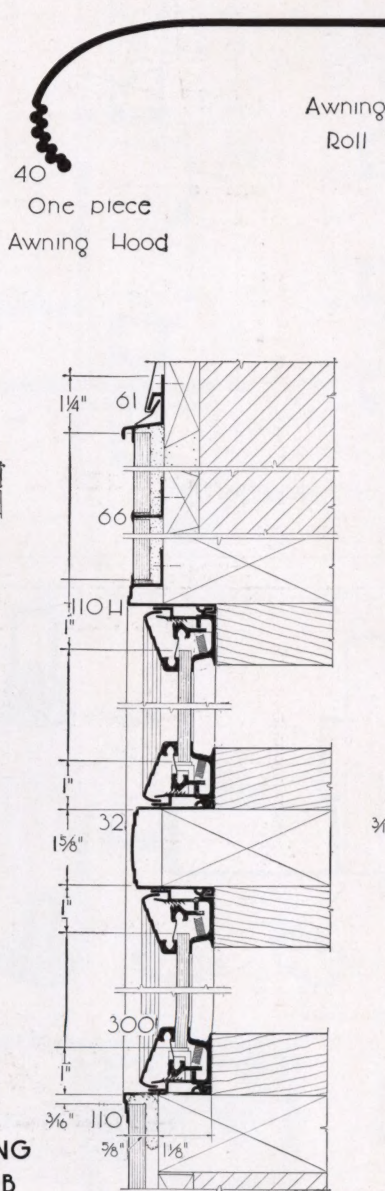
SIDE JAMB

Note weather proof  
construction thruout



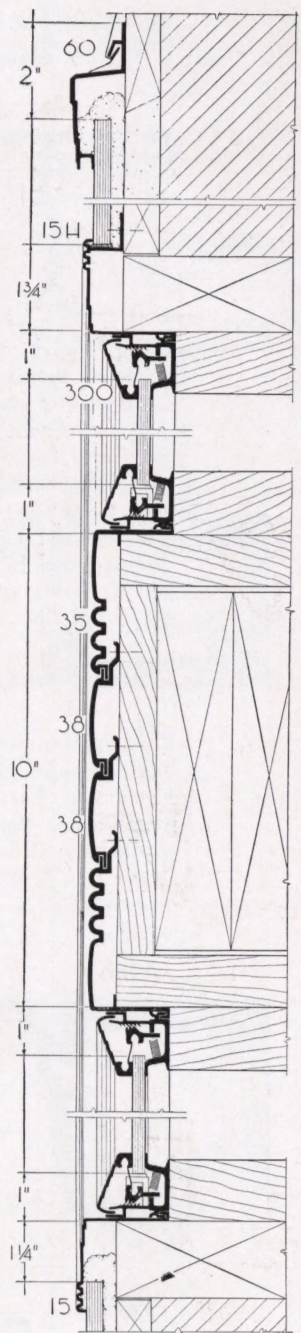
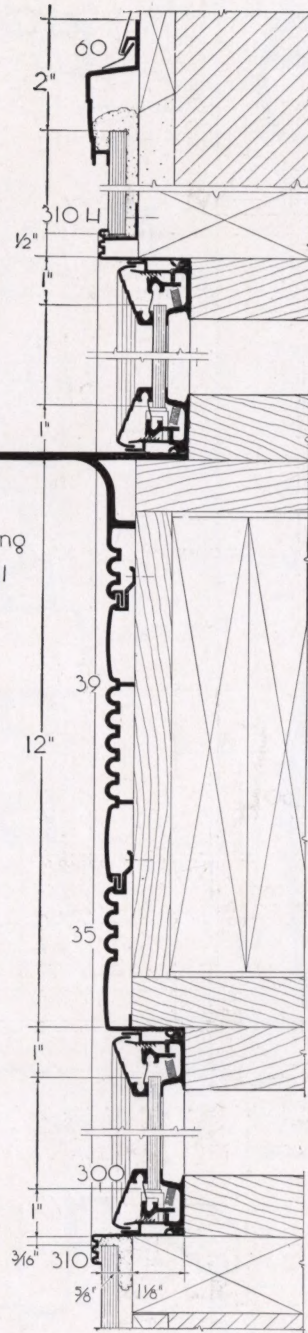
SELF SUPPORTING  
SILL AND JAMB

VERTICAL SECTIONS



Awning  
Roll

One piece  
Awning Hood



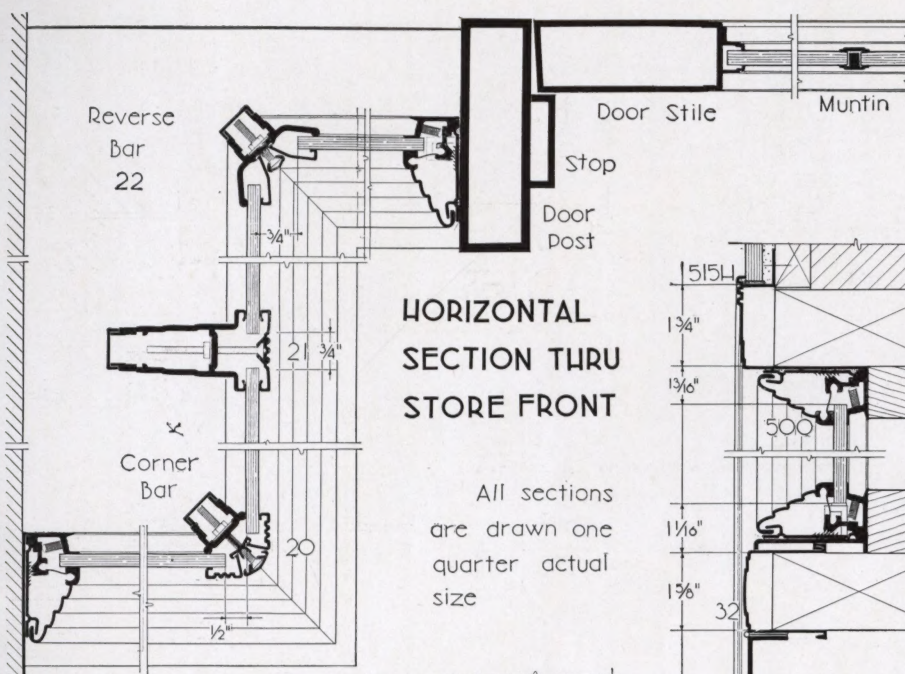
VERTICAL SECTIONS



Extrudalite (10)

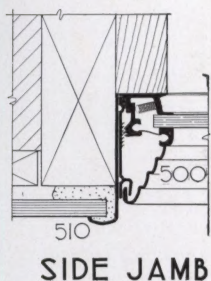
L . O . F EXTRUDALITE



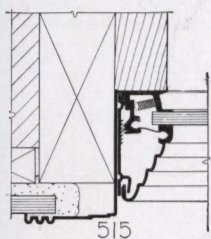


### HORIZONTAL SECTION THRU STORE FRONT

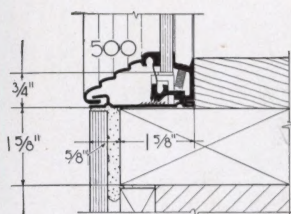
All sections are drawn one quarter actual size



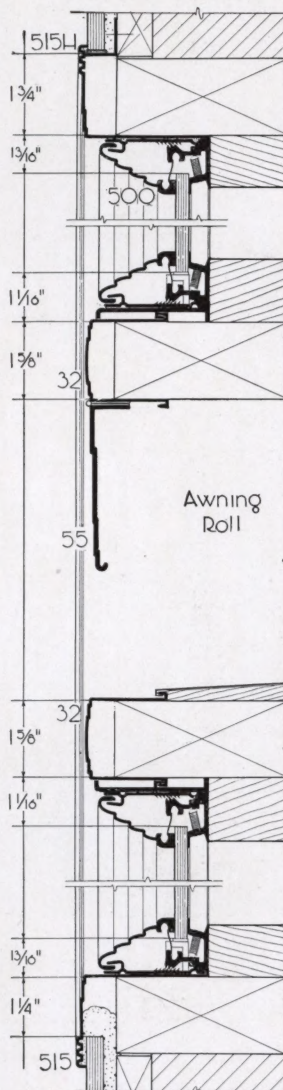
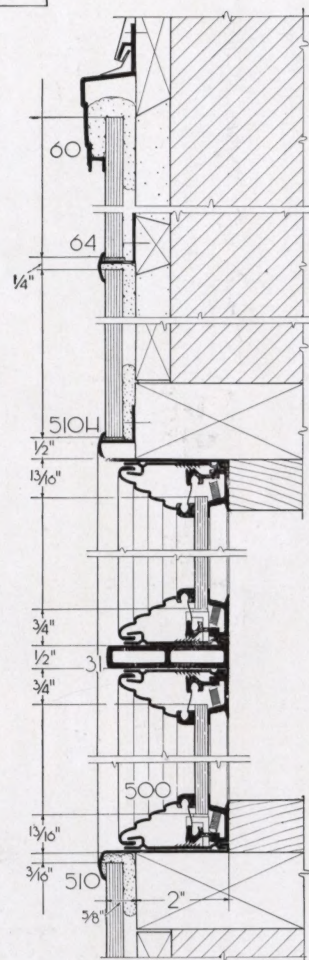
SIDE JAMB



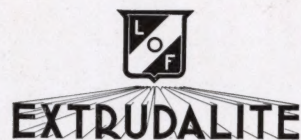
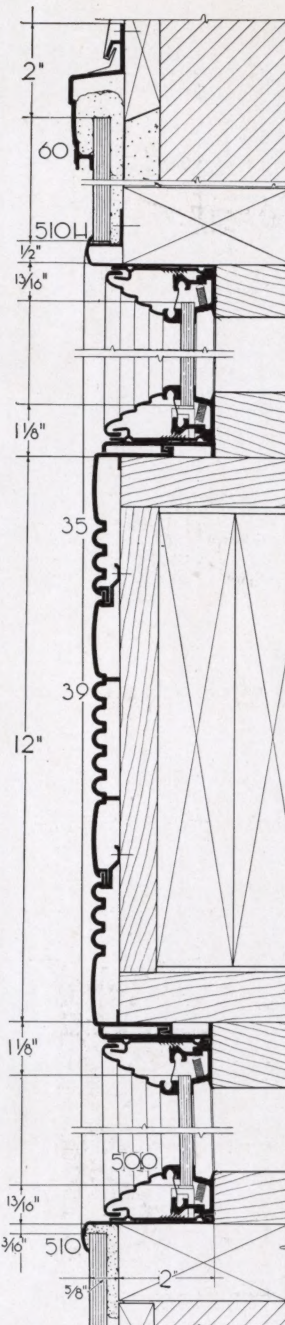
SIDE JAMB



VERTICAL SECTIONS



VERTICAL SECTIONS





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Catalog

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OWENS

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**T. C. ESSER COMPANY**

111 NORTH FRONT STREET

LA CROSSE, WISCONSIN



1941

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